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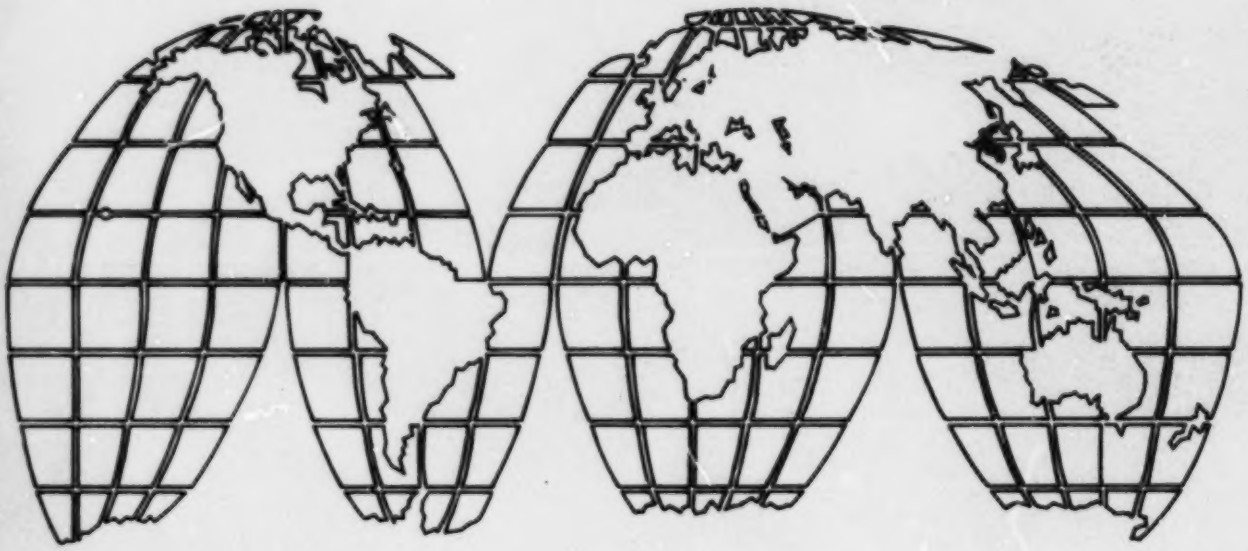
A.I.D. Evaluation Special Study No. 5

Korea Elementary–Middle School Pilot Project



October 1981

U.S. Agency for International Development (AID)

PN-AAJ-169

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KOREA ELEMENTARY - MIDDLE SCHOOL PILOT PROJECT

A.I.D. Evaluation Special Study No. 5

by

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Agency for International Development

October 1981

The views and interpretations expressed in this report are those of the authors and should not be attributed to the Agency for International Development.

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FOREWORD

This report is being published under the Agency's special evaluation report series. Originally, it was intended that this report appear as an Agency impact evaluation. But subsequent to its completion, I learned that aside from the team leader, most of the team members had been involved with the creation and/or operation of the project being evaluated. The Office of Evaluation has made every reasonable effort to determine the accuracy of this report. By all accounts, the project has been an extremely successful effort and the attached report is thought to be valid and of significance. However, by definition it cannot qualify as a thoroughly disinterested report, a requirement of Agency "impact" evaluations.

The only option which appeared fair to readers was to present this report as a special study and to lay the facts forward clearly for your consideration.

This report is one of a series on education at the elementary and non-formal levels being compiled by AID to examine its experience in this important area of education. A final evaluation report will summarize and analyze the results of all studies in this sector, and relate them to program policy and design requirements.

Robert J. Berg
Associate Assistant Administrator
for Evaluation

PREFACE

Twelve years have elapsed since the Korean Government approached A.I.D. in mid-1969 with a request f assistance in expanding educational opportunities and increasing the relevance of education to the changing needs of Korea's economy. The project that grew out of that request reflects great credit on the Korean and USAID officials who recognized a need, an opportunity and the resources required if a significant reform was to be accomplished. The United States contributed $7.4 million to the cooperative effort. However, it was and is a Korean project that, while never losing sight of most of the original project goals, has been modified over the years to suit Korean needs as perceived by the Korean Government (e.g. the project's title became a misnomer, as the A.I.D. assisted effort never really worked at the middle school - junior high-level; moreover, the emphasis was on mass demonstration tryouts and pilot activities for the elementary schools and much effort went into education policy research). The A.I.D. input has concluded, but education reforms go on supported by an institution created by the project and a transfer of ideas and technology from the United States.

This evaluation occurred at an opportune time. By 1981 the new instructional program had been tested thoroughly and its effectiveness validated in representative schools throughout the nation. Yet it still retains identity as a special project. Within two years the new program is scheduled to become the standard mode of operation for all Korean elementary schools and the project, as such, will cease to exist. With nationwide implementation the relationship between project outcomes and nationwide program effects would be more difficult to measure with precision.

The evaluation team had two U.S. members, a generalist A.I.D. Foreign Service employee and a U.S. university professor of education research who worked on the project as the Florida State University official primarily responsible for the A.I.D. funded contracts that led to, and assisted in the implementation of the project. While A.I.D. normally does not allow persons to participate in this kind of evaluation of projects they have worked on, his availability as a necessary last minute team replacement, personal qualifications, wealth of knowledge on Korean education in general and the project in particular, and demonstrated objectivity during the evaluation convinced the team leader that his selection was a correct decision. The Korean members of the team consisted of university professors with specialities in education finance and systems management, both of whom had worked earlier on the project and had continued to follow it from academia, and a university professor of sociology. The Korean members of the team prepared materials for use by the U.S. members, who accept full responsibility for this final report.

The team wishes to express appreciation to the many Korean government officials and educators who took time from their busy schedules

to talk extensively and candidly with us. Their hospitality and warmth made our visit most enjoyable. Special thanks must go to the members of the Korean Educational Development Institute who responded to our every request despite a workload that was already too great. Finally, the team thanks the U.S. Embassy and the Residual AID Affairs Office for outstanding logistical support, including our dedicated and ever cheerful secretary Mrs. Cho, Yun-Hi.

SUMMARY

This educational improvement project clearly has had a continuing, widespread and positive impact on Korea's educational practices. A large, sophisticated national research and development organization for education has been created. A new and powerful instructional system has been built, tested and proved. It is now being prepared for nationwide use at all levels of public education. Radio has demonstrated its value as a means of providing and supporting instruction. Public educational television is now in use and plans are being made for expanded use of TV at all educational levels. Significant changes in national policy, an outgrowth of this project, will yield educational benefits for years to come.

These changes derive from a project which grew out of grave concerns on the part of Korea's leaders in the late 1960's that their educational system was not keeping pace with the nation's accelerating industrial expansion. The schools were not producing a sufficient supply of young people educated to a level to make them suitable candidates for the nonagricultural work force. Given the nation's lack of other natural resources, maximizing the development and productivity of its citizens was a sine qua non for continued prosperity.

Three converging phenomena - a deeply imbedded cultural respect for education, a growing resource base of highly trained Korean educators and an urgent national need - set the stage for educational reform.

In 1970 Korea asked A.I.D. to survey their educational system and propose how it could be made more effective and efficient. Florida State University (FSU) accepted the assignment and began what was to be a seven year effort. FSU's report proposed major changes in almost every facet of education through the ninth grade, changes which FSU believed would prepare larger numbers of Korean youngsters for the world of work and for further education, and would do this with improved cost effectiveness. Also proposed was the creation of the Korean Educational Development Institute (KEDI), which would do the research needed for development of the system and then orchestrate the reforms. Korea accepted the FSU recommendations and requested A.I.D. assistance.

A.I.D. provided loans in 1972 totaling $7.4 million for technical assistance, training, commodities and local costs. The importance of A.I.D.'s inputs were greatest at the beginning of the project and diminished with time as KEDI grew in strength and the Koreans adapted the project to fit their objectives. From the beginning a wide variety of national leaders - educational and other - were involved in setting project objectives, which affected project design and modified some objectives, but helped to maintain a critical Korean consensus on the objectives selected. Some Koreans attribute project successes to the degree of flexibility allowed by A.I.D. The A.I.D. assisted effort ended in 1977 and the project essentially was completed in 1979 when its basic objectives were attained - an empirically tested and proved new educational system for the elementary level (work on grades seven through nine had been delayed) and creation of a strong institution

designed to continue education reforms at all levels, from general educational policy to new curricula or classroom processes.

Overall, the project has been successful. Dramatic improvements in student learning - the bottom line in education - have proved the effectiveness of the new system. The main purpose of the project was to develop an effective system, not to implement it. However, implicit was that implementation would follow development of a successful system. Within five years the elements of the new system will be built into all grades of the public education system through new KEDI-produced textbooks and teachers' guides. At lower grades nationwide implementation will begin in 1982. KEDI has become an effective research, policy development and planning arm of the Ministry of Education. KEDI's record, current assignments, Ministry plans for it and its large and impressive staff, facilities and budget leave no question that institutionalization has occurred.

The major disappointment was that the project's cost reduction objectives virtually disappeared. The predictable resistance of teachers and parents to the means by which cost savings were to have been achieved (larger classes using different teaching processes and technologies, and double shifting); growing government revenues, which allowed the government to spend more on education than it had expected would be available and not to have to face controversy; and a lack of focus by educators on cost effectiveness combined to end pursuit of this objective. Related disappointments were the failure to introduce Instructional Television (ITV) as a major part of the formal curriculum along with other technologies which could have led to cost reductions and additional improved learning. ITV might have made it if Korea had not selected an unproven U.S. transmission technology. The technology failed and the project went forward without ITV. Other technologies - which would have been cost effective with larger classes and would have made available some of the funds now used for teachers salaries for other educational purposes or for savings - were dropped due to their higher cost for the smaller classes that were retained.

The evaluation team believes that this project is worth study by educators and donors worldwide. Many countries have a need for an institution like KEDI, which exists to discover or invent functionally useful educational practices, the effectiveness of which can be demonstrated. Its only purpose is educational change and improvement. To rely for major educational improvement on other kinds of institutions, such as universities or government agencies, has not been successful because research linked to innovation is simply an "add-on" to their traditional functions. Their success or survival depends much more on accomplishing their usual goals.

The power of Instructional Systems Design (ISD) has been amply demonstrated. However, prior to this project it had never been applied to large-scale educational problems in a developing country. KEDI's successful use of this technology and the results achieved suggest that a wider use of ISD is in order. ISD should have utility in many human resources development efforts - in other sectors such as health, agriculture or industry - and in other countries.

PROJECT DATA SHEET

1. Country: Korea

2. Project Title: Elementary-Middle School Pilot Project

3. Project Number: 489-H-085

4. Project Implementation

   a. Project Authorized - 4/13/72
   b. Final Obligation - 9/13/72
   c. Final Input Delivery - 8/31/77

5. Project Completion - - Final Disbursement: FY 1980

6. Project Funding:

a.	A.I.D. Total 1/	$ 7.4 million
b.	Other Donor 2/	.4 million
c.	Host Country	13.3 million
	Grand Total	$21.1 million

7. Mode of Implementation:

   a. A Loan Agreement between A.I.D. and the Korean Government's Economic Planning Board; implementation by the Korean Educational Development Institute.
   b. A.I.D. financed host country contracts.

8. Evaluations:

   a. Periodic regular evaluations (only the final evaluation could be located, however it suggests that at least one previous evaluation was conducted).
   b. A comprehensive evaluation in 1979.

9. Responsible Mission Officials during Life-of-Project:

   a. Mission Directors/AID Representatives: Mr. Michael H. Adler, Mr. Dennis P. Barrett
   b. Project Officers: Dr. Bascom Story, Dr. William M. Williams, Dr. Mary C. Neville, Mr. Edwin A. Gales

10. Host Country Exchange Rates:

   a. Name of Currency - Won (₩)
   b. Exchange Rate at time of Project - 1 US$=484₩

1/ Includes $5 million equivalent in won from a FY 1972 Rice Loan (489-H-084).
2/ Estimate.

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GLOSSARY

ETV	Educational Television. Television used to train, deliver information or provide cultural experiences, but not as part of a formal curriculum.
E-M	Elementary-Middle School Pilot Project
ERIC	Educational Research Information Center
FSU	Florida State University
Gun	County (140 throughout country)
IR	Instructional Radio
ISD	Instructional Systems Design. A logical system of designing, developing and delivering instruction so that verifiable student learning is most efficiently accomplished.
ITV	Instructional Television. Television used to deliver subject matter information as part of a formal curriculum.
KEDI	Korean Educational Development Institute. An independent, autonomous and government-funded educational research and development center serving all of Korea.
MOE	Ministry of Education
Province	A ROK geopolitical level of government. In the field of education, provincial administrative responsibilities are similar to those found in a U.S. State. However, provincial officials are appointed by the national government. The ROK has nine provinces.
ROK	Republic of Korea

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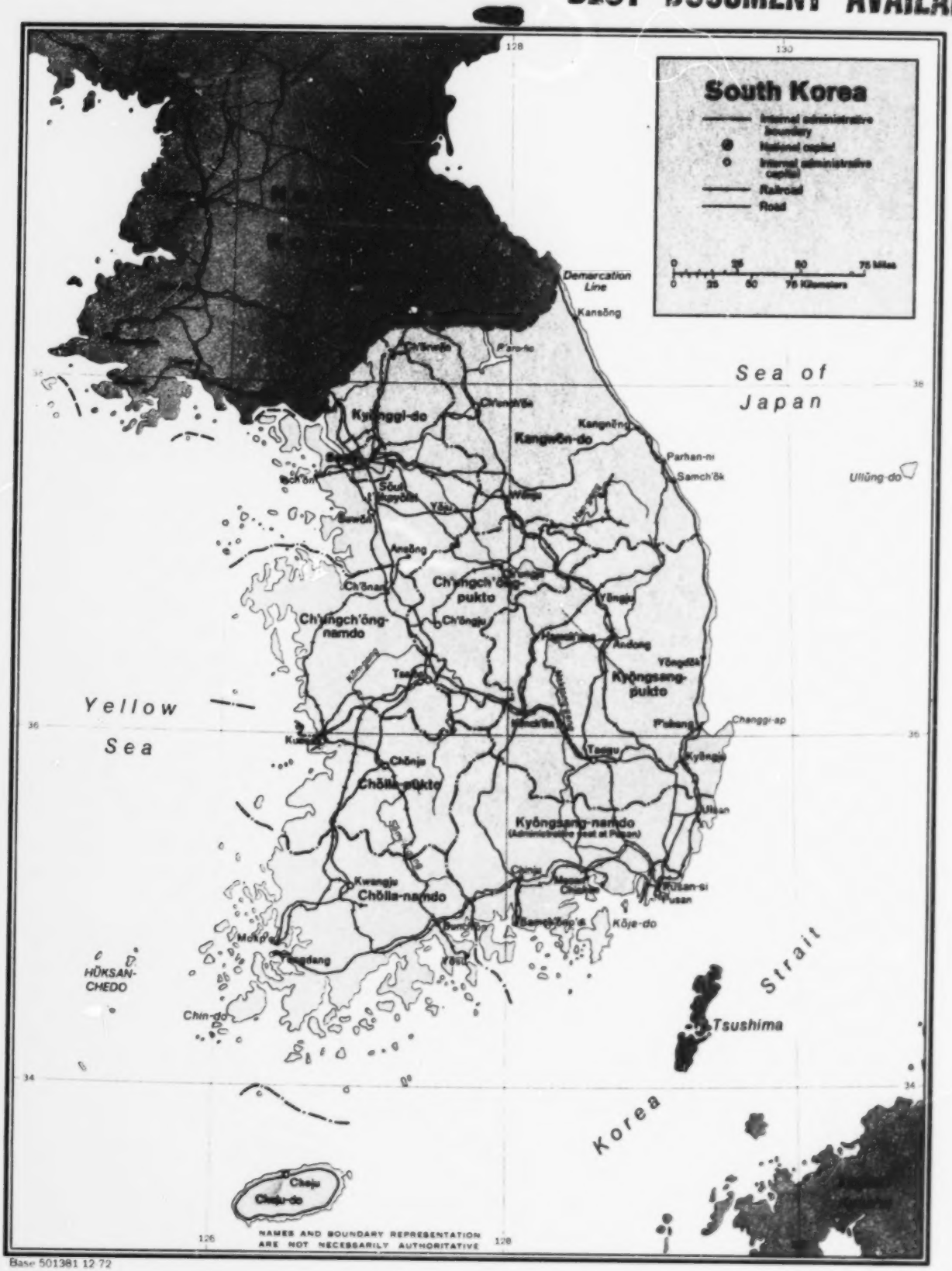

I. PROJECT SETTING

Following the devastation of the education system during the Korean War (1950-53), developing a new system became a national priority. Great efforts were made to build schools, to create teacher training institutions, to prepare qualified teachers, and to develop textbooks and other teaching-learning materials. By 1968 more than 95 percent of elementary school age children were attending school. Enrollments in middle and high schools had increased to the point that large numbers of children wishing to continue beyond the elementary level were unable to do so.

During this period Korea's economic development was skyrocketing - exports increased from $55 million in 1962 to $1.7 billion in 1972 and GNP growth averaged 8.7 percent annually. Korea was rapidly achieving important status in the world of business and industry. With this change came a need for improved education and educational opportunity to meet the requirements of a larger, effective nonagricultural work force. Elementary school graduates were too young to enter the nonagricultural work force and, more important, were not good training candidates for business and industry. Moreover, the educational achievements of rural students were significantly less than that of their urban counterparts. Leaders in government and education clearly saw the need for an educational reform at a cost that the Republic of Korea (ROK) could afford - 19 percent of the national budget already was allocated to education.

A ROK Long Range Educational Planning Committee, recognizing the importance of education to Korea's development, proposed in 1968 a comprehensive program of educational reform and recommended that an institution be established which could plan and orchestrate the reforms. Korean concern over the educational system was instrumental in an A.I.D. decision to fund a study in 1970 by Florida State University (FSU) to find if Korea might be able to organize its educational resources in ways that would make educational programs more responsive to the nation's needs and, simultaneously, function more efficiently.

The FSU study team's report 1/ included an external appraisal of the national education system and proposed a significant educational reform program, concentrating initially on the elementary and middle schools. It proposed a later effort that would focus on post-middle school vocational/technical education and recommended the creation of the Korean Educational Development Institute (KEDI), the agency to be responsible for the educational reform program. The report suggested a change from the traditional system of education with its emphasis on rote learning and almost exclusive concern with preparation for higher education, despite the fact that fewer than 10 percent of the students could expect to enter post-secondary institutions. The

1/ Systems Analysis for Educational Change: The Republic of Korea. The University of Florida Press (1971).

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new educational model, designed to prepare Korea's youth for vital roles in the nation's development, encompassed the first nine years of schooling and had the following characteristics:

-- Compulsory education extended through the ninth grade (three additional years);

-- New approaches to class size, pupil groupings, and differentiated teacher staffing;

-- An orientation to the world of work and pre-occupational education;

-- A comprehensive national plan for the appraisal of student achievement and continuing evaluation of the educational system; and

-- Radically different instructional delivery with heavy dependence on a national system of instructional radio (IR) and instructional television (ITV), on individualized instruction, and on new classroom procedures.

The report asserted that the new educational model would reduce per pupil costs of instruction (by means of larger classes using different teaching processes and technologies, including ITV and IR), improve the quality and effectiveness of the teaching-learning process, and modernize the curriculum so that it would be more relevant to societal and individual needs.

The FSU report was delivered in February 1971 to the ROK, which decided to implement the Elementary-Middle School reform, foregoing until later revision of the vocational-technical high school program. (This additional reform was started by the Ministry of Education (MOE) later, but not as part of the A.I.D. financed project.) FSU was invited to return to Korea under a second pre-project A.I.D. funded contract to assist with detailed project planning.

II. PROJECT DESCRIPTION

The goal of the project was to make the educational system more responsive to Korea's changing manpower needs, which increasingly required both more and better trained persons to serve rapid industrial growth. Implicit to the goal was that Korea's only natural resource would continue to be a motivated and well trained workforce that would keep Korea competitive in international markets. The purposes of the project were a reformed system of education for grades one through nine that would be more efficient and effective, and the institutionalization within KEDI of the ability to utilize on a continuing basis advanced concepts of instructional Systems Design (ISD). 2/ The major elements of project design were: to perform the research needed to underpin the system, to develop the system and then to validate it in a limited number of representative

2/ Several Koreans with U.S. Ph.D's already were working in "mastery learning" and had demonstrated major learning gains through the use of ISD in the Korean context.

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schools, all within five years. By the time the loan agreement was signed in September 1972 KEDI had been created to carry out the project and had elaborated an ambitious workplan - the FSU proposal provided guidelines, not a detailed blueprint - for a systematic effort to develop, in sequence: modern educational goals; an improved curriculum; appropriate and effective learning materials, including IR and ITV; a new school management system; an evaluation plan and a series of field trials designed to assess the effectiveness of the new instructional system. While KEDI would lead this effort almost all leading Korean educators, local and national, ministry and university, would become involved.

The project had four critical assumptions. First, that the motivation of Koreans to improve the efficiency and effectiveness of the education system was strong enough that entrenched interests - educators with different philosophies of education and some teachers who were comfortable with the existing system (chalk, talk and rote memory) - would not be able to block change. Second, that Korea's history of innovating and adapting outside technology would be repeated. Third, that various education processes and technologies tested and proven separately outside of Korea could be combined in this project, producing a dramatic improvement in student achievement and a more cost effective educational system. Fourth, that the proposed system ultimately would help to produce many more ninth grade graduates trained to a level that would prepare them to be suitable candidates for further academic, technical and job training - especially the latter.

A.I.D.'s contribution to the project was $5 million equivalent from a Rice Loan for local currency costs and $2.4 million from a Development Loan for foreign exchange costs. From the latter $627 thousand was applied to a contract with FSU which utilized the funds as follows: $307 thousand for the services of 15 advisors, all for less than one year; $178 thousand for KEDI personnel travel and for the U.S. training of 30 members of KEDI's staff, 11 to the Ph.D level; $124 thousand for library materials; and $18 thousand for miscellaneous expenses. 3/ FSU's primary effort, through both advisory assistance and training, was in the introduction of educational technology. The remaining approximately $1.8 million went for equipment for KEDI, primarily broadcast production equipment. In addition, in 1974 A.I.D./Washington funded an evaluation of the project by the American Association of Colleges for Teacher Education. Experts went out every six months over a four year period ending in 1978. These experts, along with A.I.D/Washington personnel, also provided a source of technical assistance as a byproduct of the evaluation. The ROK contribution to the project through 1981 will equal $13.3 million equivalent.

While the project generally proceeded along the lines of the KEDI workplan outlined above, several important points should be mentioned.

3/ Areas in which KEDI staff members received training included educational planning and financing, instructional systems design and development, educational administration and school management, teacher education, industrial technology education, science education, mathematics education, communications technology, programmed instruction materials development and production, and educational television/radio production and broadcast facilities design.

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First, almost immediately the project faced critics who gained the ear of the President of Korea who halted the project and had it reviewed by a group of distinguished leaders. Favorable comments by the group caused the President to order the project implemented, thereby giving it enhanced political status. Second, GNP grew at a much higher rate than expected resulting in more money being available for education and a virtual dropping of project emphasis on cost reduction. Third, the project focused almost exclusively on the elementary level and only recently began working seriously on the middle level. Fourth, KEDI decided to broadcast ITV from a tethered ballon (not A.I.D. funded). Much publicity was given to this innovation, which also was to introduce color TV to Korea. When the technology failed KEDI's public image suffered, much time and effort had been wasted, and the project had to proceed without ITV. Additional comments on KEDI and the project's implementation history can be found in Annex G.

III. PROJECT IMPACTS: FINDINGS

KEDI elaborated and refined the FSU proposal into an operational program which included nearly all the FSU recommendations. However, some of the FSU recommendations were not implemented and others were modified to a considerable degree for reasons including political or social difficulties, cost and technical problems, and changes in the educational situation which dictated changes in the reform solutions. Appendix F sumarizes the key recommendations of the FSU proposal, the modifications and the reasons for these. Despite the variance between what was proposed originally and what was accomplished, those concepts essential to reaching the overall goals of increased relevance and quality of learning have endured.

Critical to project success were a number of closely integrated objectives. For curriculum improvement, upgrading and modernizing subject matter and developing instructional resources which were validated instruments for predictable behavior change were prime requirements. Mass communications were to be employed to strengthen the teaching/learning process. Research was required to rationalize decision-making and policy formulation. An organizational capacity for developmental research was essential for continuing educational improvement, as was a means for the transfer of research knowledge and products to operational use in schools. Finally, Korea nededed to expand school enrollments at all levels, especially in the middle and vocational schools. And they needed to do all this with available resources.

These project objectives have been accomplished to a large degree. However, the project was only for the development of a new educational program to be tried out in a limited number of representative schools. Implicit in the loan agreement, however, was that if the new program was more effective and efficient it eventually would replace the traditional system nationwide subsequent to the project's time-frame.

One enduring project effect has been the creation of KEDI, judged by many international educators to be the largest and most sophisticated educational research organization in the free world (KEDI was selected in 1980 by the Encyclopedia Britannica as among the world's top ten

institutes of Educational Research). As a national agency for educational change and improvement KEDI already has a record of successses many of which extend well beyond the Elementary-Middle School (E-M) pilot project. KEDI serves as the educational research and planning arm of the ROK.

A. Curriculum Improvement

Much of the subject matter in the curriculum was out of date, especially in the sciences. Rote memorization of verbal information characterized the learning experience with little attention paid to problem solving, critical thinking and inquiry skills development. Also, the subject matter was classically academic, perhaps sufficient for college-bound students but inappropriate for the vast majority of students who would enter the world of work after the ninth grade.

Instructional materials in 1970 were limited to inadequate textbooks. More creative teachers sometimes made aids to learning such as posters or flip charts, but in general teaching resources were deficient, placing a very great dependence upon the highly variable qualifications of the individual teacher.

1. Upgrading and Modernizing Subject Matter

KEDI's staff recognized the importance of substantially revising the content of the elementary-middle school program, but realized that the result should be consistent with Korean cultural and social goals. In a series of work meetings over several months Korean civic leaders, business representatives, educators and lay citizens analyzed educational goals in terms of the country's needs and problems. This resulted in a consensus on learning outcomes by subject and grade level which would modernize the content and make it more responsive to societal needs. This type of analysis and definition of national educational objectives on such a scale is without precedent.

As the goal definition process proceeded new content was added. Orientation to the world of work, industrial arts, environmental and ecological issues, and population education were included as important new educational objectives. Typically, these were not added as whole new courses, but were integrated appropriately into the existing course structure. Population education, funded by the UN for approximately $400 thousand, became an integral part of the project (see Appendix I).

2. Instructional Materials Development

The comprehensive and detailed educational objectives thus derived became the specifications against which instructional processes and materials were developed. KEDI was required to integrate their new materials with the textbooks then in use. New materials were to assure that the new or changed content was covered adequately and that efficient learning occurred. While isolated improvements were made in the middle school curriculum, the greatest effort went to reforming the elementary program. The description which follows is of the development of elementary school materials.

The student's principal new instructional resource is the workbook. However, these are similar to workbooks as known in the U.S. only in name. KEDI workbooks were developed as a blueprint for student learning. They include detailed specification of expected learning outcomes and tell what kind and quality of behavior the student must exhibit to demonstrate attainment of those outcomes. Instruction, problem-solving activities, and work exercises are built into the workbooks, as well as formative, self-test exercises designed to permit each student to assess the adequacy of his or her own learning progress. Since these were designed for coordinated use with the existing textbooks the student knows what is expected and where he or she stands daily with respect to these expectations. These workbooks were designed using the same principles of learning which are fundamental to programmed instruction.

3. Teacher Materials

The workbooks were an important element of KEDI's strategy to change significantly the teaching/learning process. More important was a need for change in the role of the classroom teacher. The quality of teaching was highly variable and depended on the education, motivation and ingenuity of the individual teacher. KEDI wanted to raise the average level of teacher performance and reduce the variability. To this end they developed "teachers' guides". These guides specify classroom activities, tell the teacher how these can be implemented to maximize student learning and orient the teachers to their changed roles in the context of the new curriculum. In a traditional classroom nearly all of the teacher's time had been spent lecturing and administering exams. In the new program the teacher diagnoses individual learning deficiencies, provides classroom experiences which remedy these deficiencies, stimulates student motivation, and, generally, serves as a manager of a dynamic learning environment. The student is no longer a passive recipient of knowledge and the teacher no longer simply purveys that knowledge.

The teachers' guides were developed for each subject and grade level so that ordinary classroom teachers could perform their new functions. These guides were developed experimentally and tried out with successive groups of teachers with intervening revision until they worked well. Additional teacher training materials were developed which identified key principles of learning and taught the concepts of ISD, which was the conceptual framework within which the E-M Project was conceived and was foundational to all project development and implementation activities.

4. Empirical Validation of the Program

An essential feature of ISD is empirical validation of teaching effectiveness. KEDI conducted iterative tryouts of the new instructional elements, singly and later in aggregate, to measure their effects. These tryouts told the KEDI developers what needed to be changed in

the materials and processes tested, and provided a basis of experience for future development. Changes were based on how effective the programs were in causing children to learn.

Six small and five large scale tryouts were made. The latest tryout, completed in 1979, included 231,567 students in the first six grades from throughout the nation and covered all subject areas. It ran for a full academic year. Achievement data; student, parent and teacher reaction; and process efficiency data were collected from both the tryout schools and a matched sample of control schools. The results on all of these variables significantly favored the KEDI tryout schools.

Following an earlier 1978 tryout the ROK appointed an external commission to conduct an independent evaluation of the E-M program. This test was run for two months on twenty classes in three schools in urban, rural and mid-sized communities. Thirty-five classes in six comparable schools served as the control. All subjects were included and overall learning achievement increased over 20 percent (see Table 1).

All achievement differences between the two groups favor E-M schools and all are statistically significant. They are especially impressive to educators whose best efforts to raise student achievement usually result in little or no success. From numerous interviews with local school administrators and teachers, the evaluation team learned that some objectives less amenable to objective measurement also were being accomplished. Without exception those interviewed judged that there were significant improvements in the E-M students' oral and written communications, analytical and creative thinking, and problem solving. They also said that when these students went on to middle school their study skills and capacity for self-directed learning were superior to students from traditional schools. They confirmed KEDI's findings of whole-hearted approval of the new system by teachers, parents and children (see Tables 3, 4 and 5, Appendix E). The only objection raised was that there was too much material in the KEDI curriculum to cover in the available time.

A comparison of subject mastery of these same students revealed that the number reaching partial mastery or better increased from 53.2 percent to 85.6 percent (see Table 2). This experimental comparison done independently of KEDI was for only two months and involved only 3,481 students, a much shorter testing period than KEDI's large scale tryouts, which involved thousands of students. However, the findings are essentially the same. Of particular interest was that student performance in rural schools consistently tended to equal those in schools in large urban areas, a shift from the historical relationship (see Appendix E, Table 2).

Based upon a review of the KEDI and the external commission's reports on student achievements, and discussions with school administrators and teachers, the team was convinced of the validity of the findings presented in the reports.

Table 1 A Comparison of KEDI's Elementary Program and Conventional Instruction - Basic and Advanced [4/]

Subject	Level	Achievement Final Scores		Difference in Scores	Percent Improved
		Control Schools N=2,206	KEDI Schools N=1,275		
Korean Lang.	Basic	69.2	80.7	11.5	16.6%
	Adv.	64.4	81.3	16.9	26.2%
Math	Basic	64.0	81.0	17.0	26.6%
	Adv.	54.5	75.6	21.1	38.7%
Social Studies	Basic	62.2	74.3	12.1	19.5%
	Adv.	49.7	64.0	14.3	28.8%
Natural Science	Basic	68.7	83.2	14.5	21.1%
	Adv.	58.5	74.7	16.2	27.7%
Music	Basic	59.2	74.2	15.0	25.3%
	Adv.	48.5	63.9	15.4	31.8%
Painting	Basic	55.1	68.7	13.6	24.7%
	Adv.	56.5	66.4	9.9	17.5%
Total	Basic	63.1	77.0	13.9	22.0%
	Adv.	55.4	71.0	15.6	28.2%

Source: Park, Chung-Lee, et. al., Evaluation Report on the Application of the New Instructional System at the Elementary Level. Government Evaluation Commission. (1978), Pp. 58-60, Seoul.

Table 2 Achievement of Subject Mastery

Mastery Level	Percent of Students in Control Schools	Percent of Students in KEDI Schools
Mastery (80-100)	8.9%	43.8%
Partial Mastery (60-79)	44.3%	41.8%
Non-Mastery (0-59)	46.8%	14.4%

Source: Ibid.

[4/] Course objectives were divided into basic or fundamental objectives (e.g. math and reading skills) and advanced or higher order objectives (e.g. problem solving).

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5. National Implementation of the New KEDI Curriculum

The E-M curriculum was ready for national implementation by 1979 and the special evaluation commission recommended beginning an orderly phase in. However, the new curriculum was an integration of old and new instructional materials. Since KEDI by then was developing all new textbooks for elementary schools a decision was made to disseminate the E-M curriculum by means of these texts scheduled for nationwide distribution in 1982-1983. The new texts include the essential parts of the previously validated workbooks plus new and up-to-date text materials. The new combined text/workbooks are being formatively tested and revised until their teaching effectiveness is assured. The teacher guides and associated materials also are being revised to acommodate the changed format of student materials. By the end of 1983 all Korean elementary school children (approximately 5.5 million) will be learning under the new system.

B. Educational Broadcasting

The FSU study proposed ground based microwave transmission with coverage limited to clustered pilot schools. Instead the ROK contracted in 1972 for the purchase of a tethered balloon for transmission. Because the ballon could not be made aerodynamically stable and the signal quality was unacceptable the system was declared unworkable and the site dismantled in 1977. The ROK decided in 1980 to make the Korean Broadcasting System responsible for educational TV broadcasting and KEDI responsible for production. Broadcasting under this arrangement started in February, 1981. All programs are in color. Neither the size of the viewing audience nor the impact had been measured by April, 1981.

During the 1973-1977 period KEDI developed hundreds of ITV programs designed for classroom instruction, but they could not be widely used - certainly not as an integral component of the new instructional system as originally intended. Only about 30 percent of these early experimental efforts are judged by KEDI to be of sufficient quality for use today. As a result current broadcast requirements place an enormous burden on KEDI's production capacity. More air time is available and KEDI aspires to deliver daytime ITV in schools within three years.

KEDI has 200 people assigned to its Broadcast Production department. The department's 1981 budget is nearly $5 million, exclusive of salaries. There are two large, commercial quality, fixed site color TV studios and two mobile studios. KEDI expects to add two more fixed site studios by 1982 with a corresponding increase in personnel and budget.

Because of earlier technical difficulties KEDI has been slow in utilizing television, but the Minister of Education, KEDI's president and other government leaders stated in discussions with the team that expanded use of this technology for education is a high priority.

1. Instructional and Educational Television

KEDI is producing programs for preschoolers, high school students and adults in addition to the E-M level programs. KEDI is responsible

for some 21 hours of new TV programming each week, 12 hours of which is rebroadcast before school Mondays through Saturdays. Original broadcasts are in the evening six days a week. An estimated 90 percent of Korean families have a television set that can receive these broadcasts. Thirteen programs, twenty minutes in length, are produced weekly for the elementary level. These are designed to review and supplement the in-school curriculum. The programs cover such subjects as science, language, music and social studies. School people interviewed described these programs as very useful adjuncts to school learning. A few schools can record programs for showing during the school day.

2. Instructional Radio

Radio is extensively used by KEDI in two ways - to broadcast into elementary school classrooms and to support an adult out-of-school high school program.

a. In-School Radio Use

KEDI is broadcasting IR programs totaling five hours daily for direct classroom use at the elementary level. A total of 4,500, quarter-hour programs, supplementing most of the basic subjects are broadcast annually. Use of these programs is at the discretion of the local schools; however, radios are available in all schools. Data on the number of schools or classroooms making regular use of these programs is not available, but KEDI has observed that rural schools were using the programs more than urban. Some schools tape programs for more flexible classroom use.

b. Broadcast and Correspondence High School

KEDI inaugurated the Broadcast and Correspondence High School in 1974 to provide a continuing educational opportunity for working adults who had been unable to attend high school. The program is a combination of written correspondence lessons, radio instruction and periodic attendance at evening and weekend training sessions in a local high school. IR is a critical element of the program - 1,000 quarter-hour programs are broadcast each year. By 1981, KEDI's records revealed that 33,539 people were enrolled in the program and 23,820 had graduated. More than half the adults who enrolled in the program eventually graduated. Of these graduates, 83 percent have passed the preliminary college entrance examination and 21 percent have gone on to higher education. ITV will be added to the program in 1983.

C. Research and National Educational Policy

A large part of KEDI's research has been in direct support of the E-M Project. From inception, however, KEDI was assigned research tasks by the MOE on matters critical to national policy for all levels of education. What were special assignments have become routine and KEDI has created a permanent unit to do this work.

As the MOE began turning to KEDI for research-based guidance these tasks generally were related to broad, philosophical issues, e.g., early studies on educational goals and on the historical foundations of Korean education. Later KEDI was directed to undertake major problem related studies. A number of specialized studies were done on educations' role for the ROK's 1981-86 economic development plan. These included studies on vocational and technical education, population education, sex role perceptions, and community and value education. To some degree, the selection of research projects through the mid-seventies was crisis oriented, responding when certain problems assumed critical dimensions. KEDI and the MOE have recognized that such research should be programmatic in nature and by 1978 it had become a regular budget line item.

1. Changes in Educational Policies and Practices

Because KEDI's research priorities originate from real education needs, the study findings have resulted in changes in educational practices to an unusual degree. The following, while not exhaustive and not necessarily directly related to A.I.D.'s contribution to the project, exemplify the kinds of effects directly attributable to KEDI's studies.

a. Increased Access to Higher Education

Based on KEDI's studies of social and economic needs, manpower requirements and institutional capacities, access to colleges and universities has expanded considerably from 1977 forward. In 1970, 35.9 percent of high school graduates, 8.6 percent of the age cohort, were allowed to enter universities. By 1981 this had increased to 62.3 percent or 13.2 percent of the age cohort. Rapid increases in higher education enrollments are expected to continue for the next four years.

b. Abolition of Private Tutoring

Admission to higher education had been based on competitive exams and limited by strict government quotas. This situation resulted in the growth of private tutoring, the sole role of which was to supplement high school learning and better prepare students for exams. Nearly all students whose families could afford this service participated at a total annual cost of nearly $600 million. KEDI's studies recommended: abolishing private tutoring, raising university admission quotas, raising the quality of in-school instruction in the high schools, and providing tutorial supplements via television. All of these recommendations have been adopted. They also recommended a national tax, based on personal income, which would be earmarked for educational improvement. This tax would generate total annual funds roughly equivalent to the cost of private tutoring and represent a significant increase in money available for public education. The President of Korea has approved this action and the passage of the enabling legislation is expected in the 1981 session of the National Assembly.

c. Fourteen Year Educational Development Plan (1978-91)

Based on its studies KEDI and the MOE have developed a fourteen year educational plan which is incorporated in the Fifth Five-Year

Economic Development Plan (1981-1986). The educational plan sets forth targeted improvement areas, in addition to those described in a. and b. above. Priorities include:

-- continuing to improve and expand the full range of instructional materials for all educational levels;

-- providing preschool education for all children by 1991;

-- reducing class-size in elementary, middle and high schools, up to 40 percent of enrollments in middle school to be tuition-free based on the financial resources of the family; and

-- creating an open university system analogous to the Broadcast and Correspondence High School.

2. Continuing Educational Improvement

KEDI also is serving as a national clearing house for research information from other sources, both domestic and foreign. Its Educational Research Information Center (ERIC) has the largest and most up-to-date library on educational research and development in the nation. ERIC houses about 25,000 books and monographs, has 103,856 publications on microfiche which can be produced in hard copy, and subscribes to 134 journals and periodicals. It has an annual budget of $150 thousand for new acquisitions and publication of its own reports. KEDI personnel are the largest user of this resource, but it is open to all educators. A catalogue of EIRC's resources is distributed to educational libraries throughout the nation and is updated periodically.

Of those educational leaders' interviewed, several emphasized that one of the most important byproducts of the E-M effort was the growing recognition in Korea of research as an important basis for educational decision-making and the principal means of instructional improvement. KEDI's activities were said to demonstrate the value of a systematic approach to educational problem-solving. Evidence of KEDI's contributions to research is the large number of research monographs, journals and reports it has published. These are listed in Annex H.

D. Enrollment and Cost Trends

A major recommendation of the FSU study was to have all middle school age children attend school. Virtually 100 percent of the elementary school age population already is enrolled. Enrollments of the middle school age group have increased from 57 percent in 1970 to 95 percent in 1980 and are expected to reach 100 percent by 1986. However, this increase, while an important project objective, cannot be attributed directly to the project.

In the 1970-80 decade the MOE's total budget more than doubled, even with inflationary effects discounted. Per capita GNP also doubled.

Since the total number of students in school between 1970 and 1980 did not double in number there was a sharp increase in the per student cost per year and continued increases can be expected. Most of the increase can be attributed to substantial raises in teachers' salaries. The educational budget as a percentage of the national budget varied only slightly between 18 and 19 percent during this period. 4/ According to ROK projections the percent of national budget allocated to education will be in the 22 to 25 percent range from 1982 to 1986.

Total expenditure by KEDI on the E-M Project, which include teacher and student materials development, television and radio production and the purchase of related equipment, will reach $20.7 million by the end of 1981. KEDI's budget from all sources through 1981 will total $48.9 million. Its annual budget has increased each year from a low of $380 thousand in 1972 to a high of $12.6 million in 1981.

In KEDI's experimental schools the new instructional materials added a cost increment of approximately 2.5 percent (about $5) to the annual per student cost or roughly a 50 percent increase in the cost of instructional materials for each child. With the 1982-83 integration of the KEDI materials into the new texts, the added cost per student will be negligible. While the instructional system will not cost less per student, as was originally intended, it will not cost more and will generate a demonstrably higher quality of learning.

IV. PROJECT IMPACTS: ANALYSIS

1. The overall success of the project was heavily dependent on the ROK's continuing motivation to improve education and on the quality of the human resources available in Korea. From the project's beginning the Koreans were convinced that the economic success of the nation and perhaps its survival were dependent on a larger, more effective - better educated - workforce. The strong Korean tradition of respect for education also played a significant role.

The growing cadre of highly trained educational and other leaders who fashioned and implemented the project would be the envy of any developing country. The importance of this critical mass of people must be emphasized. A.I.D. may take pride in having trained many of these people (30 under this project, 11 to the Ph.D level), having helped to point the way through technical assistance and having made other useful inputs. However, this was a collaborative project which the Koreans controlled and molded to fit their interests. While important at project inception, A.I.D.'s role became increasingly secondary during project implementation.

4/ During this same period comparable percentages in the U.S. and Japan were roughly equal to Korea's level and about half that level in India and Indonesia.

2. The creation and strengthening of KEDI was important, perhaps critical, to project success and provided the ROK with a viable and powerful institution for continued education reform. If the project had been implemented directly by the MOE as normally is the case in such projects, the almost exclusive focus on the project by the implementing agency certainly could not have been expected. Moreover, ministry offices with established ways of doing things could not have been expected to embrace needed changes in established patterns with the enthusiasm displayed by KEDI. On the contrary, they might have resisted some of these changes.

KEDI has the trained staff, budget and physical facilities to continue to provide research based advice to the MOE and to develop, test and prove educational materials and processes. And KEDI has gained a position wherein it is looked to for these services.

3. The spread of project effects to all levels of education seems assured. The MOE transferred to KEDI in 1977 all MOE textbook production activities. As a result, the E-M approach will be built into instructional materials for all levels of public schools within five years. Moreover, professional educators who have worked for KEDI both as regular employees and as consultants are growing in numbers and importance at universities, and public school teachers are continuing to be trained in the E-M system.

4. Continued use of broadcasting at all levels of formal education and for nonformal education seems assured. Broadcasting is in use at the public school level, although in some cases for enrichment or review and not as part of the formal curriculum. TV is being used for a variety of informational and instructional purposes, e.g. foreign language training, for the general public. The MOE has decided to begin within a few years an "open university" program utilizing TV.

5. The ISD method of producing teaching/learning materials is effective. The project's empirical and iterative testing of teaching/learning materials was the *sine qua non* for the dramatic increases in student achievement, the bottom line in any classroom. The unusually strong motivation of Korean students to learn and, therefore, to take full advantage of these materials probably was an important factor, but has not been measured.

6. The project's hoped for improvements in cost effectiveness were not realized. The death shortly after project start-up of two very senior ROK officials keenly interested in cost reductions in education; increases in GNP which allowed the ROK to devote more funds to education; the general unpopularity of changes in traditional classroom sizes and double shifting; and a lack of focus on cost concerns on the part of educators all appear to have been significant factors in this failure.

V. CONCLUSIONS AND POLICY RECOMMENDATIONS.

1. Many countries have a need for an institution like KEDI, which exists to discover or invent functionally useful educational practices,

the effectiveness of which can be demonstrated. Its only purpose is educational change and improvement and it has demonstrated in many ways how it has served that purpose. To rely for major educational improvement on other kinds of institutions, such as universities or government agencies, has not been successful because research linked to innovation is simply an "add-on" to their traditional functions. And their success or survival depends much more on accomplishing their usual goals rather than those associated with educational change.

2. Just as institutions committed to purposeful change are needed, so are people. Dissatisfaction with the status quo and being motivated to attempt improvements are necessary, but not sufficient conditions. In addition to zeal, professional expertise and techniques essential to the processes of innovation are required. Identification of problems, alternative solution analyses, development and evaluation skills are among the essential tools. These, along with the zeal, can be learned. Investment in graduate level training of Koreans in a range of educational specialities, underpinned by training in those behaviors and attitudes essential to the "change agent", will pay off for Korea for many years. This experience is, doubtless, generalizable to many other countries.

3. Flexibility in project execution often is essential if a project is to remain responsive to changing requirements and to continue to enjoy host country support. Modifications in KEDI's 1972 plan had to be made if the impact on Korean education was to be maximized. The evaluation team was disappointed that certain objectives, which they believed were attainable - such as greater cost efficiency and classroom use of ITV - were abandoned. Nevertheless, KEDI's position within the Korean government would have been diminished if A.I.D. had insisted upon rigid adherence to the original project design, thereby dragging KEDI into great controversies.

The strategy A.I.D. used worked well. The objectives of the project were well defined and major support was given to building a strong institution to achieve those ends. Freedom to modify the means of achieving the ends was given to the institution making possible mid-course corrections and adaptations important to project success.

4. The power of ISD has been amply demonstrated. However, prior to this project it had never been applied to large-scale educational problems in a developing country. KEDI's successful use of this technology and the results achieved suggest that a wider use of ISD is in order. ISD should have utility in many human resources development efforts, in sectors such as health, agriculture or industry, and in other countries. The technology of ISD is fairly intricate to learn and use. The products of ISD - new instructional materials and processes -should be inexpensive and simple to implement. The value of generalizing this "soft" technology to other developing countries should be evident.

5. A.I.D. should give priority in its programs to the use of proven technologies in which the U.S. is the leader. Educational technology originated in the U.S. and subsequently has been refined to a high level

of sophistication. The U.S. was the indicated donor for this project. However, the transfer of technologies, such as tethered balloons, which are still in an experimental stage should be sponsored by donors only after their performance characteristics are fully explored and explained to the potential user country - or they should not be sponsored at all.

6. Continuity in technical assistance from a well selected source from project design through implementation strengthens donor contributions to projects. FSU was a recipient of an A.I.D. five-year 211(d) grant in 1971 for educational technology, with an emphasis on systems planning. For seven years under three consecutive contracts starting with appraisal of Korea's national educational system, FSU was able to provide appropriate technical assistance based upon an in-depth understanding of the project, including its socio-political context, and a long-term institutional commitment to project success. Moreover, the rapport and trust that developed over these years between FSU and KEDI (and other Korean educators) was obvious to the A.I.D. evaluation team leader who believes that the use of multiple technical assistance sources would have caused not only more labor intensive A.I.D. involvement in implementation activities, but also a less trusting relationship - with all the problems that can cause - between the technical assistance sources and KEDI.

7. In any potentially controversial project - which is nearly any project impinging on established social or cultural values - the "selling" of the project's concept is at least as important as good implementation of the project. Experience in the E-M Project underscores the requirement to build a solid base of public, political and professional support for such projects. This needs to start early and continue thrcugh the life of the project. It cannot be done in a casual way. An effective public information program requires careful planning and thoughtful implementation.

8. Too often donors have attempted to do too much with too little - too little money and not enough time. When educational leaders finally decide to deal with an educational problem they frequently want immediate solutions. The E-M Project has shown that significant educational improvement can be made when, inter alia, enough resources and time are available.

APPENDIX A
METHODOLOGY

The U.S. members of the team were fortunate to have available in the United States, prior to departure for Korea, a wealth of information on the project assembled or prepared under a small value A.I.D. contract by Dr. Robert M. Morgan. (Fortunately A.I.D. could turn to outside sources for this information as almost nothing of value could be retrieved from retired A.I.D. files). The two most important documents were the A.I.D. funded 1971 FSU study (Systems Analysis For Educational Change: The Republic of Korea - 197 pages) that led to the project and which contains extensive project baseline information, and a 1979 comprehensive evaluation (Analytical Case Study of The Korean Educational Development Institute - 593 pages) funded by A.I.D.'s Technical Assistance and Asia Bureaus and conducted over a four year period by a nine person team from The American Association of Colleges for Teachers Education. So extensive is published information on this project that the evaluation could have been a desk study if A.I.D. had been content to evaluate project results through the end of 1978. However, important changes since that date convinced the team that this "update" was necessary to portray accurately the project's impact.

The American members of the team had three and a half weeks in Korea to devote to this evaluation (which could have been a year long effort). Given the large number of rigorous Korean studies of the project (e.g., student achievement and pupil, teacher and parental attitudes toward elementary schooling) and the also large number of Korean educators and government officials whose information and opinions of the project were needed, a decision was made that the American members of the team should concentrate on analyzing the studies, conducting extensive taped interviews to seek further information and opinions to supplement the studies, and preparing the evaluation report. A field trip was made by one Korean and the American members of the team to interview local university educators, provincial school administrators and teachers, especially in rural areas, in order to gain a general perspective of the Korean classroom situation and to help confirm the mode of use, student achievement and teacher reactions to KEDI's system as reported in various studies.

The Korean members of the team were tasked with specific assignments to ferret out and to prepare information in areas where studies existed only in Korean or where their specific skills in economics, sociology and systems management were essential to integration and analysis of the data and to complement the work of the American team members. Two of the Koreans, Dr. Kim, Son-Ung, the Sociologist and Dr. Yoon, Hyung-Won, the Education Finance Specialist devoted 15 work-days to the evaluation, while the third, Dr. Lee, Chong-Jae, a Systems Management Specialist devoted five work-days.

APPENDIX B
NOTES ON THE AUTHORS AND CONTRIBUTORS

Kim, Son-Ung (Contributor)

Dr. Kim is an associate professor in the Department of Sociology at Han Yang University in Seoul. He studied at Seoul National University, The University of Hawaii, Brown University and Iowa State University, where he received a Ph.D. He was a senior fellow at the Korean Development Institute from 1975 to 1981.

Lee, Chong-Jae (Contributor)

Dr. Lee is an assistant professor in the College of Education, at Seoul National University (SNU). He is a graduate of SNU and received a Ph.D. from Florida State University. He has conducted numerous research and educational policy studies at the Korean Educational Development Institute and at the International Development Education Program at University of Pittsburgh as a visiting professor. He is the author of A Political Economy of Education in Korea.

Robert M. Morgan (Author)

Dr. Morgan is the Director of the Learning Systems Institute and a Professor of Educational Research at Florida State University. He received his Ph.D. from Ohio State University. Formerly he served as a research division director in the U.S. Office of Education and as director of Litton Industries' Educational Systems Group. He was the leader of the FSU team that conducted the 1970 study which resulted in the Korean Elementary-Middle School project and the creation of KEDI. Subsequently, he was director of FSU's technical assistance to the EM project from 1972 to 1977. He has authored more than sixty books, monographs or articles, many of which relate to international educational development.

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Mr. Witherell is an A.I.D. Foreign Service Employee currently assigned as Chief of the Near East/North Africa Division of the Office of Project Development. He has served overseas in Chile, El Salvador and Paraguay as a Program Officer and an Associate Director. He was educated at the University of Miami, University of Connecticut and the Massachusets Institute of Technology, where he received an M.S. in management,

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APPENDIX C
PERSONS INTERVIEWED

I. MINISTRY OF EDUCATION

A. National

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B. Local

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Mr. Chung, Sun-Yong, Senior Researcher, Office of Planning and Coordination, KEDI

III. OTHER GOVERNMENT OFFICIALS

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Mr. Pyo, Sei-Jin, Director, Manpower Development Planning Division, Economic Planning Bureau, Economic Planning Board
Mr. Ahn, Hee-Won, Deputy Director, Manpower Development Planning Division, Economic Planning Board

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Dr. Lee, Chong-Jae, Professor, Seoul National University; formerly Director of Evaluation and Policy Research, KEDI
Dr. Kim, Yoon-Tai, Professor, Sogang University; formerly Director, Department of Educational Policy Research, KEDI
Mr. Kim, Jong-Chul, Professor, College of Education, Seoul National University

Mr. Kang, Woo-Chul, Professor, School of Education, Ewha University
Dr. Song, Yoo-Jae, Professor, Department of Communication and Journalism, Ewha University; formerly Director of Audiovisual and Broadcast Development, KEDI

V. OTHERS

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APPENDIX E

TABLES OF KOREAN STATISTICAL DATA RELATED TO EDUCATION AND THE PROJECT

TABLE 1. Korean Statistics Related to Population, GNP and Education [1]

	1970	1980
Total Population (millions)	31.4	38.2
GNP ($ millions)	25,896	58,417
Per Capita GNP ($)	825	1,529
Children at elementary age level (millions)	5.6	5.5
Children at elementary age level in school [2]	5.8	5.7
(percent)	(103%)	(104%)
Children at middle school age level (millions)	2.5	2.6
Children at middle school age level in school	1.4	2.5
(percent)	(57%)	(95%)
Elementary level teachers who have completed two year junior college	38,008	68,802
(percent)	(38%)	(54%)
Middle school teachers who have completed four year university	20,618	46,189
(percent)	(66%)	(88%)
Total MOE budget ($ millions)	760	1,918
MOE budget for elementary level ($ millions)	582	1,140
Per pupil MOE expenditures for elementary schools ($)	101	202
MOE budget for middle schools ($ millions)	72	270
Per pupil MOE expenditures for middle schools ($)	75	178
Annual budget for KEDI ($ millions)	0	11

[1] All dollar amounts are in constant 1980 U.S. dollars. (1980 dollar rate was about 1$=W600)

[2] Includes repeaters and early starters which accounts for number in excess of 100%.

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TABLE 2. Fifth Large Scale Tryout (1978-79): Comparison of Student's Final Achievement in all Subjects for KEDI's Experimental Schools and Traditional Control Schools Following Full Academic Year Implementation of New Instructional System. (N=231,567)

	1st Grade		2d Grade		3d Grade		4th Grade		5th Grade		6th Grade		Total		Diff.*	Percent
	KEDI	TRAD.	KEDI	TRAD.	KEDI	TRAD.	KEDI	TRAD.	KEDI	TRAD.	KEDI	TRAD.	KEDI	TRAD.	(K-T)	Increase
Large City	89.4	83.2	78.8	68.1	78.3	71.3	75.0	66.0	76.9	69.3	78.6	63.5	79.5	70.2	9.3	13%
Small Town	86.5	78.1	83.5	68.5	81.6	68.6	79.5	58.7	84.2	66.3	86.2	67.6	83.6	67.9	15.7	23%
Rural	81.4	76.6	73.3	64.1	76.5	64.3	72.8	59.1	75.3	61.9	78.4	63.9	76.5	64.9	11.6	18%
Total	86.2	79.8	79.5	67.2	79.4	68.5	76.4	61.5	80.0	66.1	81.9	64.9	80.6	67.6	13.0	19%

* All Differences Significant ($P<.01$)

Source: Korean Educational Development Institute

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TABLE 3. Evaluation of E-M Experience by Local School Personnel (Unit=Percent).

	Teachers		Administrators	
	Demo. 1 Schools	Coop. Schools	Demo. Schools	Coop. Schools
Very Helpful	66.9	51.2	73.3	59.7
Helpful	32.3	46.6	27.7	40.3
Not Very Helpful	0.8	2.2	-	-

Source: Byun, Young-Kye and Geon, Seong-Yeon, Opinion Survey on Field Implementation of the New System, (1977), KEDI, P. 28.

TABLE 4. Student Opinion on Use of Student Workbooks (Unit=Percent).

	Demonstration Schools	Cooperating Schools	Both Schools
Want to Continue Using Workbooks	89.5	86.4	87.9
Don't Care	8.7	10.7	9.8
Don't Want to Continue Using Workbooks	1.8	2.9	2.4

Source: ibid. P. 37.

[1] The Demonstration Schools and the Cooperative Schools together made up the experimental sample. Both completely implemented the KEDI program but the Demonstration schools received a small amount of support financing from MOE not received by the Cooperating Schools.

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TABLE 5. Parent Opinion on Use of Student Workbooks (Unit: Percent)

	Demonstration Schools	Cooperative Schools	Both Schools
Would Recommend Student Workbooks for Use by Other Students	95.8	94.4	95.1
Would not Recommend Student Workbooks for Use by Other Students	4.2	5.6	4.9

Source: ibid. P. 38.

TABLE 6. Regional Distribution of E-M Project Participants - Schools and Students

Experimental Sample	1975	1979	1981
Urban Demo. Schools	13	13	15
No. of Students	11,162	36,209	35,339
Rural Demo. Schools	1	5	3
No. of Students	668	10,017	6,127
Urban Coop. Schools	27	55	55
No. of Students	10,638	82,380	74,832
Rural Coop. Schools	100	212	177
No. of Students	28,749	158,176	121,058
Total Urban Schools	40	68	70
Total Rural Schools	101	217	180
Total Urban Students	21,800(42.6%)	118,589(41.4%)	110,171(46.4%)
Total Rural Students	29,417(57.4%)	168,193(58.6%)	127,185(53.6%)
TOTAL STUDENTS	51,217	286,782	237,356

Source: Statistics Compiled for Internal Use by KEDI.

APPENDIX F

COMPARISON OF VARIOUS COMPONENTS OF THE 1971 FSU PROPOSAL, KEDI'S 1972 PLAN AND THE CURRENT E-M PROJECT

FSU Recommendations	1972 KEDI Plan	Current Project	Reasons for Change
1. Instructional Systems approach to be used in developing the teaching/learning program.	1. Incorporated.	1. Utilized.	
2. Curricula to be reexamined and reformed in order to better align them to national goals, to improve higher level thought processes (inquiry, problem solving), and to retain skills and knowledge objectives.	2. Incorporated.	2. Analysis of curricula and some reformulation of the curricula accomplished.	2. KEDI was restricted in its modification efforts because it had to use the 1973 textbooks in the elementary schools. (New textbooks are being developed by KEDI for introduction 1982/83.)
3. Objectives of the curricula to be carefully defined.	3. Incorporated.	3. Utilized.	
4. Korean educators would be responsible for the curriculum specification.	4. Incorporated.	4. Utilized.	
5. Self-instruction to be a key component.	5. Modified to include some self-instruction.	5. Further modified to reduce the amount of self-instruction.	5. Originally modified because self-instruction was still too experimental, modified further because of the costs of introducing the materials into the program.

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FSU Recommendations	1972 KEDI Plan	Current Project	Reasons for Change
6. Organize the schools into instructional units of 300. Students to be taught by a team of a master teacher, teachers and teacher aides (differentiated staffing) with a 50-1 ratio of student to adult.	6. Adopted the intent, but not exact plan for differentiated staffing. Called for a 70-1 student teacher ratio, but added an aid/helper.	6. Modified to include grade level instructional teams with a teacher assigned to a group of students; music, physical education and practical arts departmentalized; and individual team members (teachers) responsible for indepth preparation of lesson plans.	6. KEDI did not have the legal authority, the political influence or the teacher and parent support to make this change. Also KEDI was unable to get the additional classrooms that would be needed to implement the FSU plan.
7. Have children spend less time in a school and have two shifts of students in a given school. (To provide more classrooms for the same number of students and to provide space for more students).	7. Not accepted.	7. Not accepted in principle, however, some double shifting is required due to an insufficient number of classrooms.	7. Found to be an unacceptable alternative by KEDI and other Korean educators.
8. Heavy use of Programmed Instructional materials.	8. Included.	8. Modified drastically.	8. Because of limitations placed on the size of the workbooks related to cost. the amount of programmed instructional materials had to be reduced and in some cases eliminated.

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FSU Recommendations	1972 KEDI Plan	Current Project	Reasons for Change
9. ITV and radio IR to be an integral part of the teaching/ learning system. Students would receive 1½ to 2 hours of ITV per day.	9. Included.	9. IR included, but ITV has been used as a supplement, i.e. not as part of the formal curriculum.	9. Because of the TV broadcasting problems encountered by KEDI the system has been developed and field tested without ITV. The experiences with IR have caused KEDI to reexamine some of the original assumptions for including ITV as other than a supplement to instruction. KEDI uses ITV for inservice teacher training.
10. Self contained "student learning units" to be included.	10. Intent adopted.	10. Student workbooks provide for units of instruction with diagnostic, formative (progress check) and summative tests, as well as some practices and self instructional materials.	10. As in 8 above, the limitations placed on the size of workbooks because of cost has restricted KEDI in this area.
11. Reduce reliance on the teacher in the learning process.	11. Included.	11. Modified because of reductions in programmed instruction, ITV and IR.	11. KEDI system still depends heavily on the teacher as a purveyor of information and as the essential feedback component in the system. This is related to 8, 9 and 10 above.

F-3

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FSU Recommendations	1972 KEDI Plan	Current Project	Reasons for Change
12. That both the elementary and middle school programs would be revised.	12. Incorporated.	12. Only the elementary school program has been field tested through comprehensive demonstrations.	12. Because of the lack of trained manpower and the need to revise the middle school textbooks and curriculum, this portion of the plan has been delayed, but not eliminated.

Source: Revised from Analytical Case Study of the Korean Educational Development Institute, AACTE (1979).

APPENDIX G
KEDI AND PROJECT IMPLEMENTATION HISTORY **

Following the devastation of the Korean War and the almost complete disruption of the educational process, the task of developing a new educational system relevant to Korea's needs became a national priority of the highest order. Extensive and intensive efforts were made in the years following the war to build new schools, to create new teacher training institutions, to prepare new and additional teachers with higher qualifications, and to develop new textbooks and other teaching-learning materials. Important was the requirement of compulsory education throughout the elementary school level. By the end of the decade of the 60s, more than 95 percent of all children of elementary school age were enrolled and attending school. Enrollments at the middle school and high school levels increased to the point that large numbers of children wishing to continue beyond the elementary school were unable to do so. At the university level, a similar critical situation existed with many thousands of qualified applicants unable to gain admission simply because facilities and resources were insufficient to meet the demand and need.

While the period of educational expansion and development was occurring, Korea's economic and industrial development was skyrocketing. It was clear that Korea was rapidly achieving a new and important status in the world of business and industry. However, with this change came the need for improved education and educational opportunity in order to meet the requirements for a new and effective work force. Leaders in government and education clearly saw the need for an educational reform effort that would enhance the process of national development.

ESTABLISHMENT OF KEDI

In 1968 the concerns about education and the needs of the rapidly growing economy set in motion those events which brought about the creation of the Korean Educational Development Institute.

A Long Range Educational Planning Committee, recognizing the important role of education in Korea's development, proposed a comprehensive program of educational reform and recommended that some type of special

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1/ This section is abridged from the A.I.D. funded Korean Educational Development Institute - An Analytical Case Study, A Summary, by Paul H. Masoner, 1979, AACTE, Washington, D.C. It is a project description and history, also covering some preproject events and subsequent events through 1978, about 15 months after the A.I.D. assisted project terminated. The Impact Evaluation Report covers the April 1981 status of the continuing Korean project.

institution be established which could plan and orchestrate needed reforms. The interest of the Committee and a growing concern over the minimal changes in education since Korea's liberation were instrumental in a decision by AID to fund a study calculated to suggest a reform format. In 1970 Korea invited the Florida State University to undertake a study" ... to find if it (Korea) might be able to organize its educational resources in ways that would make educational programs more responsive to the nation's needs and, simultaneously, function more efficiently than its present educational system."

The Florida State University Study

The Florida State University (FSU) study team consisted of professional educators in administration, technology, and teacher education; specialists in economics, manpower, and systems management; and a behavioral scientist. Other consultants, both American and Korean, were utilized.

The report, published in April of 1971, included an external appraisal of the national education system at that time and proposed a significant educational reform program, concentrating initially on change efforts in the elementary and middle schools with a later effort that would focus on the post-middle school vocational-technical education program. It further recommended the creation of which came to be called KEDI as the educational research and development agency charged with the responsibility for the educational reform program proposed.

A New Educational Model

A new educational model for elementary and middle school education was proposed which was considerably different from the then existing system of education. The report suggested a change from the traditional system of education with its emphasis on rote learning, with its primary concern for preparation for higher education although few students could look forward to the opportunity to enter post-secondary institutions, with its large and overcrowded classes, and with its inadequate and low quality textbooks and other learning materials. The new educational model, designed to prepare Korea's youth for vital roles in the nation's development, covered the first nine years of schooling and had the following characteristics:

1. Compulsory education through grade 9
2. New approaches to class size, pupil groupings, and differentiated staffing
3. An orientation to the world of work and pre-occupational education
4. A comprehensive national plan for the appraisal of student achievement and an evaluation of the educational program
5. A radically different instructional delivery system with heavy dependence on a new national system of instructional radio and

television, on individualized instruction, and on management of learning resources and the teaching process.

The report asserted that the new educational model, if properly implemented would result in: (1) a reduction in per pupil costs of instruction, (2) improvement in the quality and effectiveness of the teaching-learning process, (3) a modernization of the curriculum that would make it relevant to societal and individual needs.

The Creation of KEDI

Although there was general agreement concerning the need for educational reform, there was no unanimous consensus concerning either the nature of the reform or the need to establish a new educational research and development institute to undertake reform programs. There were extended discussions concerning the establishment of KEDI and the undertaking of a comprehensive education reform effort at various levels of the educational community and throughout the government. However, an event of importance was an October 1971 conference involving a number of university professors, directors of two major educational institutes, and representatives of USAID/Korea. The report of that conference not only affirmed the need for comprehensive educational reform but also emphasized the need for the establishment of a new educational research and development institute to undertake the reform effort. However, the conference report tended to broaden and expand the scope of the proposed institute beyond that recommended in the FSU study and proposed the creation of a comprehensive educational research and development institute that would serve all of Korea. Further, the conference, while giving support to the basic contentions of the FSU study, suggested a need to examine the FSU proposals through indigenous studies and strategy development that would result in a reform program of Korean origin and based on Korean studies and research.

Following the report of the conference and the deliberations that were undertaken elsewhere in both the educational community and the government, a decision was made at the highest levels of the national government to create the Korean Educational Development Institute. Loans totaling $7.5 million from the United States Agency for International Development were authorized for the establishment of the new institute which was to undertake the task of developing the new educational system, field testing the system through a program of experimentation and demonstration, and disseminating the system, once approved, throughout Korea. This primary task of KEDI, the accomplishment of a major educational reform program for the elementary and middle schools of the nation, was designated the Elementary-Middle School Development Project (E-M Project). In August 1972 the government of Korea authorized the formal inauguration of KEDI, and Dr. Yung Dug Lee was appointed to the position of director.

KEDI is described as "an independent, autonomous, and government-funded educational research and development institute, which undertakes comprehensive and systematic studies on educational goals, content, and methodology. These studies are purported to develop a new educational system that will be responsive to the nation's needs and provide for the solution of educational problems..." Both the Korean Educational Development Institute Law and the subsequent Presidential Decree which formally authorized the establishment of KEDI clearly identify the role of KEDI as a comprehensive educational research and development institute. Specific mention is made of the development and diffusion of innovative educational programs that utilize modern radio and television. In addition KEDI is designated as a teacher training institution.

With the creation of KEDI the first director and his small group of associates faced monumental tasks: the development of a large and complex research and development institution and the building of a new national education model for the elementary and middle schools of the nation.

THE MISSION OF KEDI

The KEDI mission began to take form during the progress of the FSU study. Original assumptions relating to the purpose of KEDI as stated in that study appear in the project loan proposal. In addition, the background for statements of KEDI purposes can be found in the documents on Korean education of the 1968 - 1972 period. These documents note the quantitative demands on education created by the Korean respect for and faith in learning; the imbalance of access to schools between urban and rural areas; weaknesses such as inadequately prepared teachers, qualitative regional differentials, outmoded pedagogy, limited instructional materials; and the necessary role of education in national development.

A brief but comprehensive mission statement may be deduced from the general purposes stated in the project loan proposal:

1. To determine educational ideals and objectives which reflect the cultural heritage, social reality, and future direction of the Korean society

2. To reformulate and systematize educational content to correspond to educational objectives

3. To develop and utilize modern educational methods, facilities, and materials to achieve an effective and economically efficient program of education

4. To establish a comprehensive research and development agency to assist the Ministry of Education in formulating educational policy for the nation

From these basic purposes a broadly derived mission statement may be expressed as follows:

> The Korean Educational Development Institute serves the Ministry of Education in the analysis of educational needs of Korea and in the invention and trial of effective programs and structures for the improvement of the educational system.

KEDI ORGANIZATION, STRUCTURE, OPERATIONS

There was precedent in Korea for the role of KEDI and for its relationship to the Ministry of Education. Other ministries had "think-tank" research and development adjuncts. Among others, there were the Korean Development Institute associated with the Ministry of Economic Planning, and the Korean Institute Science and Technology associated with the Ministry of Science and Technology. In addition, there was the highly respected research and development institute informally associated with the Seoul National University, the Korean Institute for Research in the Behavioral Sciences. It was this institute that served as a training ground for many who became involved in the development of KEDI.

A number of factors were important in the early development of KEDI and in the nature of the administrative organization and structure that emerged. Once the problems relating to the actual establishment of KEDI were resolved, there was strong and unequivocal government support. There was assurance of adequate and continuing financial resources. Although the tasks which KEDI was expected to perform related to urgent educational concerns, there was a recognition that a long lead time was essential and that major educational improvement would require extensive resources and time. The "autonomous" nature of KEDI made it possible for the new organization to operate without many of the restrictions that are common in government bureaucracy.

Extremely important was the recognition that leadership and top level personnel of the highest quality are essential to success. The FSU study stated:

> The selection of the Director of KEDI will perhaps be the most crucial decision of the total project. The Directorate calls for a man of extraordinary management ability as well as one who can command the respect of the small but intellectually powerful group of Korean educational research leaders. The capability to attract and retain Korea's ablest researchers, to energize them, and to orchestrate their capabilities into an efficient and coherent production effort is a must.

Extremely important, then, in the development of KEDI was the appointment of Dr. Yung Dug Lee as the director of the new research and development organization. Dr. Lee had the qualifications described above. He

directed KEDI through its formative years and continues to give KEDI leadership of the highest quality. Further, he recruited initially a small group of highly qualified and able professionals and organized them into a team that has been effective in making KEDI an outstanding educational research and development center.

Organizational Structure

The development of an organizational structure was an evolutionary one. Initial efforts of the small initial staff focused on program planning and budgeting related to the initial major task, the Elementary-Middle School Development Project. As plans were developed it was necessary to recruit staff for the tasks proposed and to create an organizational structure in which the staff could operate with maximum efficiency and effectiveness. In the early days of KEDI's existence the majority of the professional staff, especially those of senior status, reported directly to the director. Further, the director participated personally in all deliberations and was directly involved in all important decisions. However, as the tasks of KEDI were more clearly defined and as new and important responsibilities were added to KEDI's role, the organizational structure that emerged was one that clearly differentiated major responsibilities and established lines of authority and communications that were essential to an effective operation.

A constant in the organization since the founding of KEDI has been a governmentally appointed Board of Trustees with the Minister of Education serving ex officio as the chairman. The Board has generally included members of the National Assembly, university presidents, key staff members from the Ministry of Education, public school administrators. In addition KEDI is always represented by the director and the chief auditor. Although KEDI is relatively autonomous, it is dependent upon the Ministry of Education in many ways and is increasingly viewed as the Ministry's agency of research and development. The membership of the Board of Trustees reflects that relationship as well as the need for ties to the National Assembly and to higher and general education constituencies. It is a group representative of the political and professional-political linkages essential to KEDI's survival. The Board of Trustees is primarily a policy formulating body and is officially charged with review and approval in the following areas:

1. Budget development and implementation
2. General program planning
3. Appointment and dismissal of KEDI officers
4. Property acquisition and disposition
5. Debt assumption and management
6. Changes in the Articles of Incorporation
7. Changes in By-Laws
8. Dissolution of the corporation
9. Matters referred to the Board or required by changes in the Articles of Incorporation

KEDI is headed by a president (formerly called director) chosen by the Board of Trustees. Early in the organizational evolution were two associate directorships, one for research, development, and programmatic responsibilities, and the other for management, administrative, financial, and public relations tasks. However, with changes in tasks related to the educational reform responsibility and the assignment of new roles and tasks by the Ministry of Education, a new structure was developed which included at the top levels the positions of president, vice president, and directors of the several divisions.

By January of 1979 the organizational structure shown in Figure 1 had been adopted. This structure places the president and vice president in the primary administrative roles and indentifies the major areas of responsibility as divisions - administration, educational broadcasting, educational policy studies, basic studies, and curriculum development. In recognition of the need for effective coordination of the many roles and tasks of KEDI an office dealing with research planning and coordination has been created. Important in the structure are two advisory groups. A consultant Committee, composed of representatives from higher education, public education, relevant government agencies, and other domains provides advisory and consultant service to the president of KEDI. A Planning Committee, composed of division heads and other senior staff, has responsibility for consultation and planning in terms of KEDI goals, policies, and projects. This new committee provides for significant staff input into KEDI planning and operation.

Management and Decision Making Process

In many cultures organizational structures do not accurately describe line and staff relationships and the locus of authority. However, in KEDI there are relatively few deviations from authority line relationships. The president of KEDI does deal directly with directors of divisions on substantive program matters, but the vice president is clearly in the authority line on internal administrative affairs. The president is the primary channel through which KEDI communicates with external professional and political entities and is the means by which these are interpreted with in KEDI.

Because of the structural formality there is less than optimum movement across organizational lines. This situation creates problems of coordination which are magnified by the complex variety of products and services associated with the E-M Project. For example, coordination between those staff members responsible for printing instructional materials and those responsible for radio and television programs is difficult. It is a problem recognized by the KEDI administration and efforts are being made to solve the problem. There may be a number of reasons for the structural formality that characterizes KEDI. First, the culture generally displays strong respect for rank, position, and authority. Second, KEDI perceives itself as an academic institution rather than a civil organization and the

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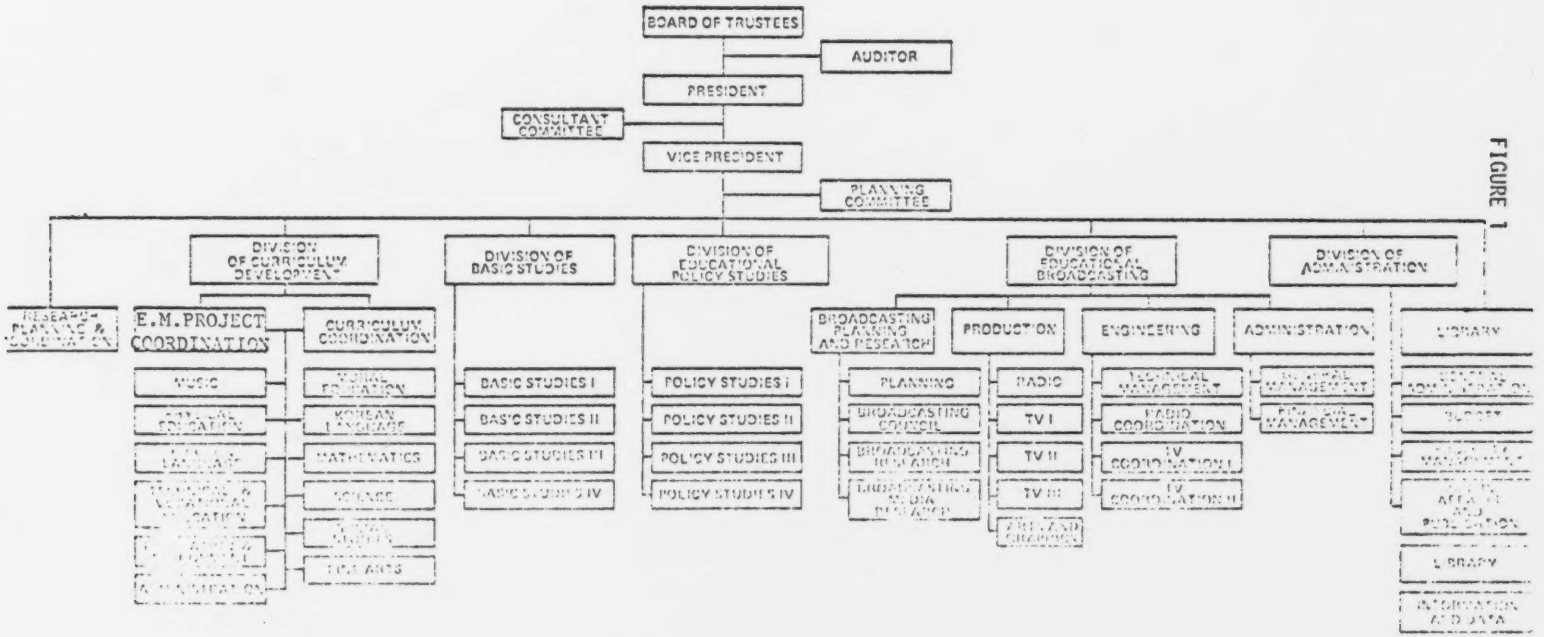

FIGURE 1

Fig. No. 1 ORGANIZATIONAL STRUCTURE OF THE KOREAN EDUCATIONAL DEVELOPMENT INSTITUTE
EFFECTIVE JANUARY, 1979

status rules of academic generally apply. Third, KEDI and KEDI personnel are so task oriented and pressures for production are so great that there is little time to go beyond the structurally defined authority lines.

In a large and complex institution like KEDI coordination of functions and responsibilities is quite difficult. It is not always possible to place complete reliance on formal vertical structures since such structures tend to focus on communication and authority lines which may, at any point, be artificial and dysfunctional in programmatic terms. Therefore, it is often necessary to create a horizontal organization with purely program coordination responsibilities. In KEDI, the necessity for horizontal coordination is clearly exemplified in the Elementary-Middle School Development Project. This effort to bring about a comprehensive educational reform in elementary and middle school education obviously requires the outputs of all the major divisions of KEDI. KEDI has recognized the importance of this task and has created informal and ad hoc relationships through the assignment of individuals to task forces or committees responsible for coordinating various efforts in ways that will bring about not only greater efficiency but greater effectiveness in the utilization of divisional efforts. In the 1979 structural organization a new unit has been created with the responsibility for research planning and coordination, a major step toward improved coordination.

External Linkages

Recognizing the importance of establishing close and effective relationships with various external organizations, both domestic and international, KEDI has from the beginning carefully developed a number of linkages. At the domestic level, linkages have been established with the major units of the Ministry of Education, with various other ministries, with the Blue House (the executive offices of the President), higher education institutions, the public schools, and professional organizations. At the international level, linkages have been established with the United Nations Educational, Scientific, and Cultural Organization (UNESCO), the Asian Center for Educational Innovation and Development (ACEID), the Center for Production and Training for Adult Education Television (CEPTA-TV), and others. These linkages, domestic and international, and the accompanying cooperative relationships and endeavors have been highly important in KEDI's acceptance in educational and governmental circles and in its achievements.

Human Resource Management

KEDI began its operations with a relatively small staff of highly qualified educational researchers and administrators plus necessary support personnel. However, as planning activities progressed and as KEDI began to implement plans related to the major task of educational reform and other roles assigned by the Ministry of Education, the recruitment of personnel

of all types became an important and continuing task. The early strong competitive position related to salaries was diminished as significant salary increases were granted to educational personnel in the schools, universities and other post-secondary institutions, and in government agencies. However, in 1979, in recognition of the problems of recruitment and retention of qualified staff, a new salary structure was approved that once again gave KEDI a competitive advantage.

Personnel Allocation. The growth and development of KEDI as a research and development center are clearly illustrated by the data in Table 1. From a staff of 37 in 1972 KEDI grew to a staff of 336 in 1977. Subsequent increases as a result of the undertaking of new responsibilities, especially the task of planning and developing textbooks for elementary, middle, and high school, have raised the total staff complement to nearly 400 persons. Some indication of various job classifications is apparent in the table. However, there are many job specializations within the KEDI operation including a large number of building maintenance workers of various types; radio and television specialists such as script writers, producers, engineers, animators, and graphic artists; education specialists such as curriculum developers, in-service teacher trainers, textbook writers, researchers, statisticians; business and financial workers; and many others.

Staff Training and Development. A major task of any educational research and development institution is the provision of opportunities that will enable staff members to grow professionally and to gain increased competence for current and emerging responsibilities. From the beginning the leadership of KEDI recognized the critical importance of this task. Initially, the availability of highly qualified personnel was limited as it was in many other nations engaging in major curriculum reform. Further, the rapid increases in knowledge related to educational development and technology required a continued upgrading even of qualified personnel. Programs of staff development and training have included in-service training within KEDI itself, attendance at seminars and conferences in Korea and abroad, short term and long term training overseas including graduate training leading to master's and doctor's degrees. Overseas training opportunities have been extensive: 16 seminars, 19 workshops, 17 conferences, 7 field observations, and 74 training programs (23 for periods of five months or longer). Areas of study have included television and radio production, instructional design, curriculum planning and development, systems management, and others relevant to KEDI needs.

In recent years the number of opportunities for overseas study on a long term basis has diminished as KEDI has been able to build and retain a staff with the requisite competences and as the institute has been able to develop its own internal training programs. However, KEDI continues to use every possible resource to make it possible for staff to participate in programs and conferences in other countries and accesses training funds

TABLE I

Numbers of Staff by Personnel Classification

	1972	1973	1974	1975	1976	1977
President/Director	1	1	1	1	1	1
Auditor (Board Rep.)	1	1	1	1	1	1
Deputy/Associate Dr./ Vice President	1	1	1	1	1	1
Head Researcher	-	-	-	-	2	2
Senior Researcher	3	4	6	6	15	27
Researcher	16	32	41	54	48	52
Associate Researcher	-	-	-	-	10	20
Assistant Researcher	-	-	4	2	10	-
Intern Researcher	-	15	5	6	2	-
Research Professor	2	5	11	18	1	-
Materials Developers	-	-	20	16	-	-
Technical Staff	3	32	48	46	50	52
Broadcast Staff	-	-	-	27	39	51
Librarian	-	-	-	2	-	3
Administrative Staff	9	22	28	50	55	53
Skilled Workers	-	-	31	41	37	43
Auxiliary Staff	-	-	-	6	27	27
General Services	-	-	11	10	8	10
	37	114	214	289	307	336

NOTE: Counts were made late in each calendar year. Totals for 1972-73 are presented as shown in KEDI annual reports.

from UNESCO, UNDP, USAID, and other international agencies for support. It is important to point out that KEDI's competencies for training have been recognized internally in Korea and externally, especially among Asian nations. KEDI has offered a variety of training programs for Korean educators and has served as host for seminars and internships for educators from the countries of Southeast Asia.

Up to this time training opportunities for KEDI staff have been limited primarily to individuals preparing for high level research and development roles or responsibilities in radio and television production and broadcasting. However, there is a growing recognition of the need to advance the competence of individuals in administrative or administrative service positions. Critical areas for future training are those associated with institutional planning, evaluation, and coordination.

Human Resource Problems. Human resource problems often revolve around three questions: Can the organization compete for the best available talent? Can talent be retained in the organization at a high level of productivity? Can the organization contribute to the growth of its personnel and thus to the improvement of the profession? KEDI has done remarkably well in respect to these questions. This is not to say that KEDI has had no personnel problems. Like all organizations, especially those that have been newly established, KEDI has had to face problems. Most serious has been that of retention of qualified staff in relatively high level positions. Initially, KEDI was in a good competitive position in regard to salaries. Once that competitive edge was lost, attrition increased. Among those who received training under KEDI auspices, 20 have left the organization. Ten of these had received long term training (five months or more) in foreign countries; the remaining 10 had participated in short term programs. Seven of those who had resigned held the doctorate. It is important to point out that many of those who left KEDI entered universities or other post-secondary institutions. Thus, while there was a loss to KEDI, there was a net gain to the nation in terms of trained personnel in other educational institutions. In spite of these losses, it is clear that KEDI has had a remarkable period of retaining staff. Loyalties are very strong, and even those who resign to accept university positions often return to serve KEDI in part time roles or as consultants.

Currently, now that KEDI has once again regained its competitive position in terms of salaries, with policy changes anticipated that will allow greater opportunity for individual research efforts and that may make it possible for KEDI personnel to be seconded for temporary periods to universities, the problems of retention of staff are likely to decrease. In any case, KEDI administration has had an excellent record of success in the development and retention of an excellent staff.

Physical Facilities

KEDI is housed in a cluster of buildings on a site of 53,680 square meters located in a suburban area of Seoul, the capital city of Korea. Driving time to the center of the city and to major government offices is about 25 minutes.

Included in the facilities are offices, research areas, conference rooms, an auditorium, radio and television production and broadcast studios, and support service areas including a cafeteria for employees and visitors. A total work space of 11,473 square meters is available. This cluster of buildings was designed to specifications developed by KEDI and completed in 1975.

An additional site of 6,900 square meters was purchased by KEDI in 1976. It was planned originally to develop this site as a conference and training center. However, later decisions were made to utilize the site as a housing development for KEDI staffers. Presently a total of 57 homes have been built on the site and sold to members of the KEDI staff at more favorable terms than could be expected normally. At the same time, the proposed training center is to be built on land adjacent to KEDI headquarters and will include not only a training facility but also a television studio and offices.

Table 2 summarizes physical facilities owned by KEDI.

Broadcast Facilities

Because of the planned reliance on radio and television programming in the new instructional system to be developed for the nation, KEDI early constructed facilities to serve this purpose. The broadcast facilities on KEDI's main location include two large, highly developed, three camera television studios and two well-developed radio studios, one for voice recordings and one for dramatic production. These facilities, comprising about 3,000 square meters, are equipped with all of the highly sophisticated electronic equipment and hardware needed to achieve top quality production. Additional support services including graphic illustration, animation, motion picture film, and photographics are available but are not yet well developed. However, as the experience of KEDI in radio and television production increases, it is anticipated that these support services will be improved to meet program production needs.

Initially, it was anticipated that KEDI would not only produce radio and television programs but also would have the direct responsibility for operating a nation-wide broadcast transmission system. With this task in mind, KEDI built in 1976 transmission facilities near Jecheon in North Chung Chong Province on a land area of 137,650 meters about two hours from Seoul. In 1972 the Korean government had entered into a contract with the Tethered Communication Corporation (T-COM) of the Westinghouse Corporation

TABLE 2

KEDI--Physical Facilities
(As of January 1980)

	Year of Construction	Cost (in 1000 Won)	Area (Sq. Meters)	Additions Year	Additions Cost	Additions Area
KEDI Main Campus						
R and D Building	1974 - 75	313,079	8,389	1976	6,950	- Interior construction
				1977	3,580	- Interior construction
Broadcasting Building	1974 - 75	470,969	3,136	1975	43,570	- Interior construction
				1976	20,187	- Interior construction
Guard Room	1974 - 75	900	16			
Watch Tower	1975	4,430	33			Guard Booth and Defense Storage
Micro-Wave Tower	1974 - 75	10,380	--			
Total Main Campus		799,758	11,473		74,287	
Staff Housing	1978 -	155,000	2.640			Fifty-seven homes constructed for sale to staff. Others planned.
T-Com. Transmitter Site	1973 - 76	203,729	27,050			The T-Com. Site has been virtually abandoned.
Training Building	1980					To be constructed on main campus. Will include training facilities, television studio, and additional offices.

for the purchase of television and radio broadcasting equipment to be installed at the Jecheon site.

The T-COM transmission system was to make use of a helium filled tethered balloon flying at 10,000 feet with transmitters affixed. It was planned that KEDI's instructional television and radio programs would originate in the main studios in Seoul, be relayed to the T-COM transmitters on a C band microwave link, and then be retransmitted to the television and radio receivers in the school classrooms throughout Korea. Two UHF channels were allocated for instructional television and one FM channel for instructional radio. This first phase of the plan called for coverage by KEDI broadcasts of two-thirds of Korea. A second phase called for a second T-COM site in the south that would make possible coverage of most of the remainder of the nation.

Unfortunately, insurmountable problems faced KEDI from the beginning in this important aspect of its work. A few trial broadcasts were made in late 1975. Picture quality was unsatisfactory. Further, the nature of Korea's climate made it clear that the anticipated aerodynamic stability of the tethered balloons was unrealistic. The unsatisfactory quality of the signal and the inability to achieve the land coverage expected added to the problems of broadcasting. Finally, in 1977 the system was declared unworkable and the site was dismantled.

Although the T-COM Corporation did indemnify Korea for its financial losses, the loss of experimental broadcast time was a serious blow to KEDI. However, recent decisions have been made to re-institute a revised program of instructional and educational radio and television. The new system will be land-based, and responsibility for transmission has been assigned to the Korean Broadcasting System. However, KEDI will still have the major responsibility for design and production of programs and related research studies.

Financial Operations

The initial financial support for KEDI came from A.I.D. loans totaling $7.5 million which were to be used primarily for the educational effort known as the Elementary-Middle School Development Project. Supplementing these loans and the interest derived from investing a large portion of the Rice loan was a budgetary allocation from the Korean government for on-going operations of the institute. As KEDI has developed, sources of funds have increased and KEDI now receives income from continued government support, from grants and contracts, from foreign loans, from invested capital, from sale of publications. Financial support has increased each year and KEDI appears to be in a sound financial situation.

Budgeting and Financial Management. KEDI submits a budget to the Ministry of Education in June-July of each year. This budget is prepared

by KEDI for each operating unit. The budget process is as follows:

1. A budget request is developed by each unit head in cooperation with members of the staff.

2. Budgets thus developed are received and analyzed by the KEDI budget office.

3. An aggregate budget is prepared by the budget office for review by the president and other top officers.

4. The annual budget, as finally approved by the president, is submitted to the Ministry of Education for review by the director of planning and management.

5. The budget is submitted by the Ministry of Education to the national government's Economic Planning Board for review.

6. The budget is then sent to the Committee on Education and Culture of the National Assembly.

7. Finally the budget is acted upon in general session.

Obviously, at any point in these procedures modifications may and frequently do occur up to the final action by the National Assembly. Although the KEDI budget is at all times visible as a separate item, it is submitted to the National Assembly as an element in the budget of the Ministry of Education. The budgetary review within the Ministry is important because it is at that level that KEDI's place in the priorities of the Ministry of Education is determined.

KEDI operates on a cash basis. Provisions are made in the budget each year for operating expenditures, debt retirement and interest payments, and capital costs for buildings and equipment. No fund is established for amortization and replacement of buildings or equipment. In fact, it is highly unlikely that the government would agree to the accumulation of a fund for this purpose. Hence, as needs for buildings or equipment arise, they become items in the annual budget request.

Although financial policies are developed by the top management officers as a team, jurisdiction over financial matters and the clarification of fiscal policy is the responsibility of the vice-president, with day-to-day management placed in the appropriate sub-units of the Division of Administration.

Table 3 provides information on KEDI operating expenses over a six-year period from 1973 through 1978. It is important to note, that as KEDI has grown in both activities and financial outlays, there has been a significant decrease in the percentage of budget allocated to management

TABLE 3

KEDI Budget Summaries--Operating Expenses

In 1000 Won

1973-1978

	1973	1974	1975	1976	1977	1978	Totals
Policy Studies	22,965.	15,687.	27,910.	35,908.	81,930.	73,861.	258,261.
Contract Projects	15,580.	39,969.	70,865.	207,456.	727,516.	858,193.	1,919,579.
*E-M Project	209,638.	440,566.	755,813.	1,900,548.	1,736,090.	3,119,745.	8,162,400.
Total Direct Program Costs	248,183.	496,222.	854,588.	2,143,912.	2,545,536.	4,051,799.	10,340,240.
Planning and Coordination	---	---	---	51,253.	61,281.	46,833.	169,367.
Operations and Management	94,887.	119,936.	107,423.	227,658.	308,196.	295,175.	1,253,275.
Miscellaneous	15,127.	24,099.	22,541.	73,143.	17,949.	121,785.	274,644.
Total Indirect Costs	110,014.	144,035.	129,964.	352,054.	387,426.	473,793.	1,597,286.
Total Operating Expense	358,197.	640,257.	984,552.	2,495,966.	2,932,962.	4,525,592.	11,937,526.

*E-M Project Costs include expenses of Broadcasting and Transmission Departments and interest expenses on loans associated with E-M Project capability.

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and operations and to indirect costs. In 1973 the proportion of the budget allocated to management and operations was 26.5 percent and in 1978 it was 6.52 percent. In 1973 the proportion of the budget allocated for indirect costs was 30.17 percent and in 1978 it was 10.47 percent.

Sources of Funds. Loans from the U.S. government in the amount of $7.5 million provided funds needed for the establishment of KEDI as an operational entity and to launch a long term task of educational reform (E-M Project). Five million dollars was in local currency (Won) and $2.5 million in U.S. dollars. Recognizing that a project-related loan of such magnitude could not be spent sensibly within a designated time frame, KEDI arranged for the creation of a foundation type fund to be created with $5 million of that amount. High interest rates in Korea contrasted with the relatively low interest rates required in repayment of the loan have made it possible for KEDI to create what is apparently a permanent endowment with the invested portion of the loan. Interest from this endowment has provided KEDI with sufficient cash flow in addition to income from other sources to maintain the investment at the original level.

Other loans in the amount of $7 million were negotiated by the government to provide for the construction and equipping of the television and radio transmission system. The aggregate of $7 million includes the following:

Western Pennsylvania National Bank (Equibank)	$2,790,000
Export-Import Bank of U.S. Credits (EXIM Bank)	$2,790,000
Exporter Credit (T-COM Corporation)	$ 697,000
Bank of London (LIB)	$ 722,500

The investment of these funds plus funds from other sources in the radio and television transmission system was made on the basis of the contract of the Korean government with T-COM Corporation. The subsequent failure of the tethered communication technology led to an agreement by T-COM to reimburse Korea in the amount of $13 million. Of this amount $2 million is in cash and the remaining $11 million in equipment for the planned land-based broadcasting system.

Throughout its existence, except for the first year, the major source of financial support has been the allocation of the national government. The constant significant increases in government support are an indication of the high priority placed by the nation on goals of educational improvement and reform and the success of KEDI in providing leadership for achievement of these goals. Over the years new tasks have been

assigned to KEDI, and each of these has brought added financial allocations. The recent decision to assign textbook development to KEDI will mean a substantial increase in budget.

Further, there has been a constant increase in income from project contracts. This growth to a figure in 1978 equal to 15.07 percent of the total income is an indication not only of KEDI's ability to undertake an increasing variety of contract responsibilities but also of the respect that KEDI has gained throughout Korea and elsewhere.

THE ELEMENTARY-MIDDLE SCHOOL DEVELOPMENT PROJECT

The initial and major task assigned to the new KEDI at the time of its inception was a major and comprehensive reform known as the Elementary-Middle School Development Project (E-M Project). The purposes of this project were clearly stated in the proposal to the United States Agency for International Development for assistance and financial support. They focus on: Korean ideals and objectives, revised educational content, a new and more efficient instructional system, and creation of a research and development center.

Utilizing this basic set of purposes, the FSU study team report and its recommendations, data from research studies by Korean educators, and perceptions of leading educational authorities of the nation, the KEDI administration and staff undertook the development of a set of specific objectives and an implementation plan to achieve these objectives. These objectives included the following:

1. To develop new curricula that reflect Korean national ideals and needs; a balance in terms of cognitive, moral, and effective learning outcomes; and modern knowledge and technological development and applications

2. To raise the achievement level of all children

3. To improve the achievement level of children in the higher learning thought processes (as reflected in Bloom's taxonomy)

4. To reduce regional gaps in achievement by equalizing the educational quality and educational opportunities of both rural and urban children

5. To provide added educational opportunity for all children, especially those in the middle school year groups

6. To improve the cost effectiveness of the educational system

7. To increase the accountability and credibility of the educational system in the general public in order to obtain greater support for the new educational system

A 1978 publication of KEDI reinforces this early statement of E-M Project goals. The statement reiterates these early goals in three dimensions:

STUDENT

... an increase in student achievement through a more effective instructional system that draws on up-to-date theories of learning and teaching

... a development of rational and creative thinking that will enable young people to cope with new problems

... a shift away from abstract learning with major reliance on the textbook to experiential learning relevant to current needs

... instruction tailored to individual needs and abilities to provide for meaningful learning and a sense of achievement

TEACHER

... an improvement of school management through the application of modern management techniques utilizing a systematic planning of activities and their evaluation on a periodical basis

... a reduction of teacher workloads that will permit greater attention to individualized instruction, research and in-service training, and improvement of teaching competences

NATION

... a decrease in regional disparity in terms of educational quality and educational opportunity

... an increase in the rate of return to the nation from the investment in its educational programs - a return that is measured by more effective outcomes of schooling

... a lowering of financial burdens on parents and an increase in the accountability and credibility of the educational system

Implementation of the E-M Project

With the goals of the E-M Project clearly identified, KEDI undertook the implementation of a carefully developed project plan which focused on: educational goals, a new instructional system, a revised curriculum and appropriate learning materials, a new school management system, instructional and educational radio and television, in-service and pre-service teacher training. Implicit in all of this was, of course, experimentation

and demonstration of the effectiveness of the new system through field trials, a strong program of evaluation, and a plan for ultimate diffusion of the program on a nationwide basis.

Studies of Educational Goals. A study of educational goals was essential in the development of a new curriculum, learning materials, and the new instructional plan. Thus, it was early in KEDI's existence that goal studies were undertaken. These studies were an effort to identify and translate into an educational system the values of Korean society. KEDI appropriately began the study of educational goals with a seminar designed to involve a broad range on interested persons. Among other projects were studies of the historical foundations of the Charter of National Education, definitions of value and moral education, student attitudes toward national referents, teacher attitudes toward the national identity. In all of the efforts focusing on educational goals, KEDI involved a broad spectrum of Korean society including educational leaders from the various levels of education. The goals thus identified have been and continue to be the basis for curriculum development and the development of teaching-learning materials.

The KEDI Educational System. The new educational system which evolved from the planning process and extensive field trials consists of four subsystems relating to: instruction, school management, instructional radio and television, and school evaluation.

The instructional system model is similar to other instructional system models found throughout the world. The model, designed to take into consideration individual needs and abilities and to focus on the academic progress of individual students, has five stages: (1) planning, (2) diagnosis, (3) teaching-learning, (4) extended learning, (5) evaluation. An important aspect of the system is that of mastery learning. Figure 2, taken from a 1978 publication of KEDI summarizes the major features of this instructional system.

The school management model, which draws heavily from the literature of management by objectives (MBO), has three components: planning, implementation, and evaluation. It is a comprehensive system with provisions to establish school goals and objectives, to set priorities on these objectives, to specify how and when they will be carried out, to determine the management plan (including grade level and combination of grade levels), and to determine how each objective is to be evaluated.

The instructional radio and television model has three major components: production of radio and television instructional and educational programs, transmission of programs to the schools and the general public throughout Korea, and evaluation of the quality and effectiveness of the programs. Initially, the primary purpose of KEDI's educational broadcasting system was to enhance instruction in the elementary and middle schools of Korea.

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FIGURE 2

The major features of the new instructional system may be summarized as follows:

STAGES	ACTIVITIES	EMPHASIS
Planning	Instructional planning by grade	Elimination of problems with class-centered (Self-Contained) instruction
	Planning for departmentalized teaching of arts and physical education	Elimination of ineffective instruction in arts and physical education subjects
Diagnosis	Identification of prerequisite learning deficiencies at the beginning of semester or unit	Determination of individual differences
	Provision of supplementary program for those with learning deficiencies	Reduction in individual differences
	Teaching of preview methods	Individualized preview
Teaching and Learning	Objectives-based instruction	Clarification of objectives
	More opportunities for pupils' active participation in learning	Utilization of multiple instructional system
	Higher motivation and encouragement of learning based on first-hand experience	Autonomous learning habits
		Utilization of radio and TV programs
Extended teaching and learning	Formative testing to assess the learning progress of individual	Identification of individual learning deficiencies
	Supplementary program based on the formative test results	Prediction of instruction effectiveness and measures thereof
	Enrichment for those with accelerated attainment of objectives	Opportunity for the more gifted to advance
Evaluation	Summative evaluation upon completion of unit and semester	Determination of instructional
	Assessment of objectives achievements	Criterion-Referenced evaluation

Radio and television were to be instructional in use. The radio and/or television program was to be the primary teacher of certain content included in the individual program being broadcast. An instructional unit for a particular segment of schooling was to include in its design the utilization of radio and/or television at specific points and times as the primary provider of lesson content. The determination of the content to be provided via radio and television was to be decided in terms of the uniqueness of radio and television as a teaching method. The objectives and the instruction that could best be accomplished by television and/or radio were to be presented by television and/or radio. Similarly, the objectives and the instruction that could be best accomplished by the classroom teacher were to be presented by the teacher.

However, the failure of the T-COM technology made it impossible for KEDI to make any extensive use of radio and television in the instructional process as planned. Although some limited use of radio was possible using the facilities of the Korean Broadcasting System and although, in a few isolated instances, the use of portable classroom equipment made possible the use of videotape programs, the planned use of radio and television as an integral aspect of the educational process was not achieved. Curricular and teaching plans had to be modified to compensate for the absence of broadcast elements of the instructional process.

In spite of the failure of T-COM, KEDI continued the production of radio and television programs in the hope that they could be utilized at a future time when adequate transmission facilities became available. By the end of 1978 KEDI had produced 1,696 television programs and 13,469 radio programs. The development of a new land-based system has been planned, using the facilities of the Korean Broadcasting System. When this becomes operative, many of these programs already produced will be utilized for both instructional and educational purposes. However, it is important to point out that the original role planning for radio and television is changing. The shift appears to be in the direction of using radio and television for general education purposes and using the programs as an adjunct and supplement to the school curriculum rather than relating them to specific instructional objectives in the classroom.

The evaluation model has two components: intrinsic or formative evaluation and pay-off or summative evaluation. In order to evaluate the effectiveness of the new educational system evaluation procedures and instruments were developed. Included among the instruments were: the formative tests used on a regular basis to evaluate student progress and to determine the effectiveness of the instructional plan; summative tests that provided information to the teacher, student, and parent concerning the degree of mastery achieved in specified cognitive, affective, and psychomotor objectives; questionnaires to elicit opinions, evaluations, reactions, and comments from administrators, teachers,

students, and parents relative to the effectiveness of the new educational system. In addition, field observations and interviews by KEDI staff were used to supplement data obtained by the use of the various evaluation instruments.

Curriculum. The curriculum for the elementary schools includes nine content areas: morals, Korean language, mathematics, science, social studies, music, fine arts, practical arts, and physical education. The curriculum for the middle schools includes these same nine content areas plus English and Korean history. An initial task of KEDI was to examine the current curriculum goals for each of these content areas and to develop specific objectives for each grade level for each subject field. In the initial revision of the curriculum KEDI considered many alternative approaches to revision. A decision was made to follow a revision plan that could be realistically managed, would receive widespread acceptance from college and university scholars, would be understood and accepted by teachers, and would include as many of the desired goals as possible. The curriculum thus revised was systematically tested in the field trials over a period of several years and modified on the basis of experience and evaluation.

Instructional Materials. During the period of almost six years during which the field testing of the new instructional system was carried out, KEDI developed an extensive array of instructional materials. These included student guides, teacher guides, television programs, radio programs, and evaluation instruments. Based on the outcomes of the field trials, these materials were constantly reviewed and revised and made ready for eventual use in the national dissemination and implementation. Of course, all of these materials were supplementary to the textbooks already in use. In most instances, both student guides and teacher guides contained additional instructional material that was viewed as an important adjunct to the textbooks. A recent government decision has moved the responsibility for the planning and writing of textbooks from the Ministry of Education to KEDI. This new responsibility should make it possible for KEDI to develop a coordinated set of instructional materials matched to the instructional plan and the revised curriculum.

Teacher Training. KEDI early recognized the need for improvement of teacher education in Korea. In addition, it was clear that a comprehensive educational reform as envisioned in the E-M Project, would call for a heavy investment of time and resources for both in-service and pre-service teacher education that would be compatible with the new educational system. In addition to basic studies aimed at the general improvement of teacher education, KEDI focused its efforts on (1) the development of a program of in-service teacher education for those teachers involved in the field trials of the new system, (2) preliminary studies and activities related to a new pre-service teacher education program, (3) planning for a national preservice and in-service teacher education program that would be necessary once the new system was established on a nationwide basis.

Obviously the major teacher training task in which KEDI was involved was that of preparing teachers for participation in the field trials - the small scale tryouts and the comprehensive demonstrations of the new educational system. In the undertaking of this task, KEDI staff developed a variety of teacher training materials including radio and television programs, held teacher training conferences, and engaged in group and individual instruction in the demonstration schools. Figure 3 provides a summary of in-service teacher training activities covering the four-year period of the comprehensive demonstrations.

The Field Trials. An essential aspect of the E-M Project was field testing of the new educational system through a series of field trials including both small scale tryouts and large scale demonstrations in which it was possible to compare educational outcomes in the experimental schools with those in the control schools. These field tests were designed to test and verify the effectiveness of the total system and each of the components of the system. Initial field testing began in 1973 and continued until 1979 for the elementary school aspect of the E-M Project. Initial field testing of the middle school aspect of the project began in 1978 and still continues.

The four small scale tryouts involved either a single grade or two grades for a limited period of time. The emphasis of these small scale tryouts was on testing the feasibility of teacher guides, student workbooks, instructional radio and television, student assessment instruments, and to a limited degree the management system and the evaluation design. The four comprehensive demonstrations were designed to test the effectiveness of the new educational system in a representative number of schools throughout the nation in large cities, small cities, and rural communities. In addition to testing the feasibility of the instructional system and the instructional materials, the comprehensive demonstrations were used to evaluate teacher training procedures and the total school management system.

The first small scale tryout involved 745 students in two grade levels in two elementary schools in Seoul. The final comprehensive demonstration involved 18 schools (one in each province and one each in Seoul and Pusan), plus 228 cooperating schools (schools not directly involved in the research study but voluntarily participating in the KEDI instructional system and the use of KEDI instructional materials). This comprehensive demonstration, including experimental and cooperating schools, involved over 4,000 teachers and 237,000 students. Continuing field trials involve a number of selected middle schools as KEDI focuses its attention on the middle school segment of the E-M Project.

Outcomes of the E-M Project

The E-M Project is among the most comprehensive efforts at educational reform over undertaken. It involved a systematic effort to develop:

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FIGURE 3

	FIRST COMPREHENSIVE DEMONSTRATION	SECOND COMPREHENSIVE DEMONSTRATION	THIRD COMPREHENSIVE DEMONSTRATION	FOURTH COMPREHENSIVE DEMONSTRATION
Purpose	To become knowledgeable concerning the new KEDI educational system, skilled in its implementation, and aware of the nature of the comprehensive demonstration and its operation	(1) To develop understanding and knowledge concerning the new KEDI educational system (2) To acquire skill in the utilization of the instructional system and the school management system (3) To develop an understanding of the nature and operation of the comprehensive demonstrations and skill in their implementation (4) To become aware of the importance of educational innovations and to develop a readiness to accept them (5) To develop in teachers, administrators, supervisors, and other educational personnel a potential and a capacity for serving in leadership roles in introducing and implementing the new educational system on a nationwide basis		
Content	(1) Concerns and problems in Korean education the nature of the new KEDI educational system (13 hours) (2) Methods of instruction in subject areas (17 hours)	(1) Concerns and problems in Korean education; the nature of the new KEDI educational system-instruction and school management (30 hours) (2) Subject area curricula and teaching methodology--curricula, instructional system, teaching methods (30 hours)	(1) The nature of the new KEDI educational system-instruction and school management (12 hours) (2) Subject area curricula and teaching methodology (12 hours)	(1) The nature of the new KEDI educational system-instruction and school management (6 hours) (2) Subject are curricula and teaching methodology (8 hours)
Methods	(1) Three-day intensive seminar (2) Field supervision and consultation on group and/or individual basis (four occasions)	(1) Two two-day periods of intensive seminars (2) Field supervision and consultation on group and/or individual basis (four occasions)	(1) Two two-day periods of intensive seminars (2) Field supervision and consultation on group and/or individual basis (two occasions)	(1) One two-day period of intensive seminars (2) Field supervision and consultation on group and/or individual basis (two occasions)
Basic Instructional Materials	(1) Training textbook (2) Operational guide (3) Teacher guides (4) Student workbooks (5) Correspondence excerpts	(1) Training textbook (2) Operational guide (3) Teacher guides (4) Student workbooks (5) Field newsletters	(1) Training textbook (2) Operational guide (3) Teacher guides (4) Student workbooks (5) Field newsletters	(1) Training textbooks - Books I, II, III (2) Operational guide (3) Teacher guides (4) Student workbooks (5) Field newsletters

Notes: (1) Participants included teachers in demonstration schools, supervisors and administrators, and volunteers from cooperating and adjacent schools; (2) Selected KEDI professionals served as instructional staff; (3) Instruction occurred at each demonstration school; (4) Content, instructional materials, and methodology were modified constantly on basis of evaluation.

educational goals, a new and improved curriculum, appropriate and effective learning materials including radio and television, a new instructional system, a new school management system, an evaluation plan, and a system of field trials designed to assess the effectiveness of the entire project.

Below are summarized certain selected outcomes of this project on the basis of available evidence accumulated during the period from 1972 - 1979.

Student Achievement. Student achievement data collected during the comprehensive demonstrations indicate a higher level of academic achievement by students in the experimental schools than by their counterparts in the control schools. Test scores showed significantly higher achievement scores in all grade levels and in most subject fields. Further, a consistently higher percentage of students in the experimental schools achieved the mastery level than students in the control schools. An independent study by the Evaluation Committee of the New Educational System appointed by the Ministry of Education validated the KEDI data that pointed to higher educational achievement by the experimental school students. While not conclusive, KEDI data suggest that the new system is having some small but positive effect in improving the higher level thought processes. However, further studies are essential in this area of research.

Regional Educational Equality. One of the problems of concern to Korea was an evident inequality of educational achievement, educational quality, and educational opportunity between urban and rural areas. Obviously, the E-M Project could not be expected to bring about national change in a process that involved only a selected sample of schools throughout the nation. However, evidence points to the potential of the new educational system in achieving regional educational equality. Test data offer promise that the new educational system can be effective in reducing regional disparities. The newly developed instructional materials, curricula that are relevant to the needs of rural children, improved quality of teaching as a result of in-service training, and the future availability of radio and television educational programs -- all these point to an eventual system of education that will meet the needs of all children, both urban and rural.

Cost Effectiveness. The major problem in determining cost effectiveness of a new educational system is one of meaning and the acceptance of a viable definition. Answers are needed to a number of questions. What are reliable baseline costs against which the new educational system can be compared? How much better is the new system than the present system? How important to Korea and to Korea's future are the improvements achieved in the new system. These are not easy questions to answer. However, studies that have been made point to the fact that the cost of the new system, or possibly any new system, will be relatively high in the initial stages. New instructional materials, educational technology, a massive program of in-service teacher training, new schools to provide for

educational opportunities for increased numbers of middle school age students -- all these add to the cost of education. At the same time, as larger numbers of students are involved in the new educational system, student unit costs decrease. This finding has been validated by studies of the E-M Project costs. While at this time it is not possible to come to any exact conclusions concerning the cost effectiveness of the new educational system, one can reasonably assume on the basis of current evidence that the new system has an advantage over the current system in terms of cost effectiveness.

Increased Educational Opportunity. The achievement of this goal is dependent upon the new educational system being in operation on a nationwide basis over a period of years. However, one can make certain assumptions. With increased educational achievement on the part of elementary school children, it is likely that a larger number will gain increased benefits from learning and will enroll at higher school levels on completion of the elementary school. Further, once the planned use of radio and television becomes operative, educational opportunity will be extended to larger numbers of individuals at all age levels through informal and non-formal education offerings.

Accountability and Credibility of the Schools. While the achievement of this goal also requires an extended period of nationwide operation of the new educational system, there are some indicators that are useful. KEDI studies involving teachers, principals, supervisors, students, and parents indicate a favorable reaction to the new educational system, to its effectiveness with students, to improvements in teacher quality, and to the responsiveness of the system to individual student needs and national goals. Once the program of radio and television for educational purposes becomes operational, the visibility of the schools will become even greater and accountability requirements will increase.

In addition to these specific outcomes, a number of other findings of the E-M Project are interesting. There is general favorable reaction among all concerned - teachers, principals, supervisors, students, and parents - to the new system. More than 70 percent of the teachers rated as effective the teacher guides, the grade-centered management system, departmentalization, the unit plan, the lesson plan, and suggestions to teachers. Teachers and principals were in agreement that the new system increased self-directed learning. KEDI, in a 1978 publication, asserted that the new system enabled teachers to devote themselves more fully to instructional planning and relevant studies, thus improving their teaching skills. Another statement in the same publication pointed out that 88 percent of the parents felt that students were more highly motivated in the new system.

It is important to mention that the study conducted by the Evaluation Committee of the New Educational System, a group appointed by the Ministry of Education, yielded generally favorable evaluations in all

aspects of the E-M Project. At the same time, the Committee made a number of suggestions for continued improvement of the new educational system.

Concluding Statement

There is little question that KEDI, through the E-M Project, has achieved remarkable success in the development of a model of educational reform for Korea. Clearly defined educational goals, a new curriculum and new and effective instructional materials, a new instructional system and school management system -- all these set the stage for a comprehensive reform effort. Data generated by KEDI and by an independent evaluation team support the effectiveness of the new system and suggest national implementation at the earliest feasible time.

KEDI has developed plans relating to national implementation including a new system of pre-service and in-service teacher education. The task of implementation, as visualized by KEDI and the Korean government, will be assigned to the Ministry of Education. To KEDI is to be assigned the role of follow-up studies to determine the effectiveness of the implementation program and to suggest improvements.

However, KEDI will continue to have an important task in the completion of the E-M Project. Study and experimentation still continue in respect to the middle school aspect of the project. Additional tryouts and demonstrations are planned that should lead to the submission of a second nationwide reform effort at the middle school level. Further, as facilities for the transmission of radio and television educational programs become available, KEDI will have an opportunity for extensive testing of the effectiveness of these media at both the elementary and middle school levels. It is conceivable that additional tasks in the program of educational reform will be assigned to KEDI and will include projects involving high school education and even post-secondary education.

THE EVOLUTION OF A COMPREHENSIVE NATIONAL EDUCATIONAL RESEARCH AND DEVELOPMENT CENTER

The planning that went into the establishment of KEDI focused on the major task of a major educational reform of elementary and middle school education. KEDI appropriately developed an initial structure necessary for this primary task. However, in the original agreement which established KEDI as the responsible agency for the Elementary-Middle School Development Project, there was an expectation that KEDI would develop a continuing, long term program of educational research and development that would serve the nation. It soon became apparent that KEDI was to become the research arm of the Ministry of Education to serve policy, planning, and basic studies needs. It was natural then for the Ministry of Education to begin turning to KEDI for guidance on a number of policy

and planning issues. At first, these issues were generally related to broad, philosophical matters such as the early studies on educational goals, on historical foundations of the National Charter of Education, and other similar tasks. Other assignments dealt with special educational problems of the moment such as the New Community Movement. Still later, KEDI was asked to undertake a major policy study dealing with the problem of increasing numbers of high school graduates unsuccessfully seeking entrance year after year to the university, causing serious social and economic tensions.

Still other studies which KEDI was asked to undertake dealt with vocational and technical education, population education, sex role perceptions, community education, and value education. With increased government emphasis on long range planning, the Economic Planning Board (EPB) requested KEDI participation in the development of the fourth five-year plan. Subsequently, the EPB asked KEDI, through the Ministry of Education, to prepare a draft of a fifteen year plan for the education sector. In addition, the EPB, in conjunction with the Ministry of Science and Technology (MOST), requested KEDI to undertake a long term projection study on manpower supply and demand in the fields of science and technology. It now appears that KEDI will be assigned a permanent role by the Ministry of Education for both short range and long range educational planning and will continue to be called on for special studies relating to national development.

Other KEDI roles, either assigned by the Ministry of Education or undertaken by KEDI on its own initiative, include such tasks as general improvement of teacher education; the role of radio and television in general education, design and preparation of textbooks for elementary, middle, and high school levels: air and correspondence high school education.

An indication of the comprehensive nature of KEDI's present involvement in a wide range of educational research and development activities is shown on Figure 4. This list of basic studies, policy studies, and planning studies is not an exclusive one. KEDI continues to become increasingly involved in additional educational tasks of importance to the nation. Clearly, KEDI has become the national educational research and development agency for Korea.

KEDI AND THE FUTURE

KEDI has in a few short years compiled a remarkable record of success as Korea's educational research and development agency. Its achievements in the monumental tasks of the Elementary-Middle School Development Project have laid the groundwork for a fundamental reform of education for the nation. Its new role in the preparation of textbooks for the schools of Korea suggest even greater influence in the years ahead in the modification and improvement of the curricula at elementary, middle, and high school levels of schooling. Its significant involvement in basic studies

FIGURE 4

Basic Studies, Policy and Planning Projects and Programs at KEDI, 1972-1978 (Masoner, 1979)

BASIC STUDIES

1. Historical and Philosophical Foundations
   - Educational Goals
   - Historical Foundations of National Charter of Education
   - Desirable Image of the Korean People
   - Attitudes toward the National Referents (Identity)
   - Value and Moral Education

2. Curriculum, Content and Methods
   - Population Education
   - Environmental Education
   - Industrial Arts Education
   - Community Education
   - Sex Role Perceptions

3. System Delivery Strategy Studies
   - Teacher Education
   - Decentralized Educational Resource Centers
   - Technician Training
   - Career Guidance
   - Special Education
   - Education for Korean Residents Abroad
   - Pre-school Education
   - Life-long Education

4. Economics of Education Studies
   - Survey on Educational Expenditure
   - Cost-Benefit of Public Schools
   - Effectiveness of Technical and Business Education in Korea (including related labor force supply and demand studies)

POLICY STUDIES

1. The Univeristy Examination Repeaters Study
2. The Compulsory Education Study
3. The High School Equalization Policy Study

PLANNING STUDIES

1. The Fourth Five-Year Education Plan (1977-1981)
2. The Fifteen-Year Education Plan (1977-1991)
3. The Fifth Five-Year Education Plan (1982-1986)
4. Provincial Educational Planning Training

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and in policy and planning activities has given KEDI a role of increasing importance in the long-range role of education in national development.

The KEDI publication record is impressive. Internal and external relationships are excellent. KEDI has expanded its collaborative efforts with universities, colleges, and other post-secondary institutions, with the public schools, with professional organizations, and with other research and development institutions. Internationally, KEDI has become recognized for its achievements and for its current and potential role in assisting developing nations in their quest for the improvement of education and the expansion of educational opportunity.

The future of KEDI as an important force in Korean education and Korean national development appears to be assured. There is evident a high level of confidence in KEDI and a clear recognition of the competence of its leaders and professional staff on the part of the government, the educational community, and the general public. The years ahead offer a challenge to KEDI - a challenge that KEDI is prepared to accept. KEDI has the dedication and competence required for continued leadership in the task of developing an educational system that will respond effectively to individual and national needs.

APPENDIX H
KEDI PUBLICATIONS AND RESEARCH

1973

1. Report on the First Small Scale Tryout
2. Current Status and Problems in Teacher Education for Primary School
3. The Application of New Instructional System in the Science of Middle School
4. An Exploratory Study of Key Variables for the Diffusion of Educational Innovation
5. Perceptual Orientations of Teachers and Students of Teacher Training Institutes
6. A Study on the Saemaul Education Activities: Its Current Status and Relationship to Some Variables

1974

7. Revision and Supplement of Educational Development Plan
8. Report on the Second Tryout of New Instructional System
9. Teacher's Guide in Population Education
10. Study on the Development of Population Education Curriculum
11. Study on Material Development of Skill Learning Education in Middle School
12. Experimental Study on the Effects of Inquiry Learning
13. Experimental Study on Skill Learning Education in Middle School
14. Survey for the Selection of Pilot Schools in Comprehensive Tryout
15. Population Dynami cs and Educational Planning
16. Basic Study on the Model of Instructional Process and Learning Guidance Program for the Lower Graders of Primary School
17. For the Practice of Saemaul Education

1975

18. Study on the Curriculum Development of Population Education

19. Organization Approaches to Population Education Curriculum

20. Report on the Third Tryout of New Educational System

21. Analysis of the 1974's National Academic Achievement Test

22. Report on the Tryout of Population Education Curriculum and Materials in Primary and Middle Schools

23. Survey on School Management System

24. Saemaul Education for Rural Development

25. Survey on Vocational and Home Economics Programs in Middle School

26. Development of Skill Learning Curriculum in Middle Schools

27. Development of Home Economics Curriculum in Middle Schools

28. Determinants of Recurrent Expenditures and Economic Scale in the Operation of Private Secondary Schools

29. Report on the Tryout of Population Education Curriculum and Materials in High School

30. Analysis of Student Achievement of Primary School; Baseline Data for the Evaluation of New Educational System

1976

31. Basic Study for the Development of Basic Learning Skill Test

32. Report on the Fourth Small Tryout of New Education System

33. Study on the Model Unit of Population Education (English version)

34. Educational Sector Plan of the 4th Economic Development Plan

35. The Outlook of Korean People on the Nation

36. Report on the First Comprehensive Tryout of New Educational System

37. Report on the Current Status of Air and Correspondence High School

38. Study on the Development of Instructional Materials in Population Education

39. Population Analysis

40. Population Growth and Social Development

41. Population Growth and Economic Development

42. Population Growth and Environmental Preservation

43. Family Planning and Maternal/Child Health

44. Human Reproduction

45. Report on the Tryout of Population Education

46. Study on the Population Conciousness of Pupils and Teachers

47. Elaboration of Population Education Objectives

48. Study on the Outlook of Korean Students on the Nation

49. Principles of Attitudinal Change

50. Basic Study on Teacher Training Program

51. Study on the Impact of ITV Program on Learning Attitude

52. Report on the First Small Scale Tryout of New Educational System for Middle School

1977

53. Survey on the Opinions Regarding the Application of New Educational System

54. Study on the Development of New Textbooks

55. Study for Organization of Social Study Curriculum in Primary and Middle Schools

56. Report on the Second Comprehensive Tryout of New Educational System

57. Basic Study for the Improvement of Value Education

58. The Impact of Basic Skills and Co-education on Six Role Bias

59. Study on the Development of Skill Learning Materials in Middle School

60. Environmental Education Model

61. Analysis of Interest in TV Program in Primary School

62. Evaluation of Population Education

1978

63. Evaluation Study on Equalization Policy of Quality in High School Education

64. Effectiveness of Technical . Business Education

65. Survey on the Actual Condition of Air & Correspondence High Schools

66. Policy Directions for the Extension of Compulsory Education

67. Survey on Student Achievement and Characteristics

68. Socio-Economic and Psychological Characteristics of School Dropouts

69. Effectiveness of Investment in Education

70. Study on the Effects of Departmentalized Teaching System in Physical, Music and Fine Arts Education of Elementary Schools

71. Report on the Comprehensive Tryout of New Educational System

72. Study on Education for National Identity

73. Study on Efficiency of Industrial Arts Education at Middle School

74. Effects of ITV Programs in Classroom

75. Study on Analyzing Pattern of Errors in the Calculation of Addition and Substraction (1)

76. Report on the Development of New Educational System

1979

77. Directions for Improving Preliminary Examination for College Entrance

78. Evaluation Study on Equalization Policy of Quality in High School Education (The secondary study report)

79. Policy Directions for the Private Middle Schools

80. An Analysis of the Elementary School Curriculum and the Perspectives for it's Improvement

81. Study on Cases of Successful Implementation of KEDI's New Instructional and School Management System

82. An Application of a New Educational System - Report of the 4th Comprehensive Demonstration of the KEDI Educational System

83. Institutional Improvement for the Implementation of Compulsory Education

84. Report on the Small-scale Tryout for the First Grade Instructional Materials Development

85. Basic Study for the Improvement of Agricultural High School Curriculum

86. Preliminary Study on Basic Learning Skills of Kindergarten Children(I)

87. The Gifted and Talented Education
-Research and Practice-

88. Korean Language Development Research-Syntactie (I)

89. A Study on the Improvement of Foreign Language Teaching (III)

90. A Survey Study on Instructional Radio Broadcasting

91. International Comparative Study on Curriculum

92. The Role of Education in Socio-Political Development

93. Research on Foreign Language Teacher Preparation and Training Programs

94. Korean Language Development Research-Phonological (I)

95. An Analysis on the Social Demands of Educational Goals in Korea

96. A Report on the Development and Application of the Complementary Learning Materials for Slow Learner

97. A Foundational Study on the Educational Improvement in the Middle School Level

98. Report on the Tryouts for Middle School English Teaching Model

99. Report on the Tryouts for High School French Teaching Model

100. Report on the Tryouts for High School German Teaching Model

101. An Analysis of the Current School System Based on the Frame of Reference for Evaluation of Educational System

102. The Expansion of Opportunities for Higher Education and Quality Control

103. Academic Staff Training and Retaining Policies for Higher Education

104. Survey on the Status and Problems of Teaching English as Foreign Language

105. Study on the Improvement of Teaching English as Foreign Language

106. Study on the Instructional Process Model for Foreign Language Teaching

107. Action Plan for the Extension of Compulsory Education

108. A Theoretical Basis for Educating the Gifted

109. A Study on the Development of New Textbook System in Elementary School

110. A Study on the Improvement of the Korean Elementary School Curriculum

1980

111. A Semi-longitudinal Study on the Standing Height Growth of Primary and Secondary School Students.

112. An Application of a New Educational System

113. A Study on Implementation of Revised Curriculum for Agricultural High Schools.

114. A Study on Basic Learning Skills of Kindergarten Children (II)

115. (Entrance Examination System) (Comparative Analysis System)

116. The Priorities of Investment for the Development of Korean Education

117. Korean Vocabulary Development Research

118. Psychological Characteristics of the Gifted Children in the Elementary School

119. Special Education in Korea

120. An Analysis of the types Identifying Children with Learning Disability

121. Some Aspects of Physical Environment in the Selected Elementary Schools

122. Exploration of Policy Direction for the Improvement of Educational Administrative System in Korea

123. Educational Administration System in Selected Countries

124. Alternative Revenue Sources for Educational Development in Korea

125. A Basic Study for the Improvement of Korea Elementary and Secondary School Curriculum

126. An Alternative Instructional Process Model for Foreign Language Teaching

127. A Study on the Impact of KEDI's New Educational System on the Korean Elementary Education

128. A Survey on Curriculum Management of Secondary Schools of Korea

129. A Study on Students' Interests and Needs to Educational Programmes in Secondary School

130. Toward Normalization of School Education: by Eliminating Private Tutoring

131. Report on the Development of the Draft for National Curriculum

Books

Exploration in the Goals of Korean Education

Cases of Educational Innovations in Korea

Exploration in the Educational Policy for National Unification of Korea

Saemaul Education: Theory and Practice

Theoretical Background of Diffusion of Educational Innovations

The True Image of Korean People

Historical Background of the National Education Charter

Direction for Embodying the Educational Ideals in Daily Life

The Directions of Innovation in Korean Education

Problems of National Education

Definition and Tasks of National Moral Education

Elaboration of Educational Objectives for Primary School

Inquiry into the Content of Moral Education

Sexual Role Perceptions of Korean People

The Life View of Korean People

Environmental Education

Educational Expenditures in the Republic of Korea

The Youghs with Strong Determination

Applications of New Educational System

School Management Handbook

Compulsory Education in Selected Countries

Vocational Technical Education in the Republic of Korea

Other Publications

Teacher's Guide:	80 kinds
Student's Workbook:	47 kinds
Student Achievement Evaluation Tool:	207 kinds
Middle/High School Textbook:	65 kinds (1978-79)
Elementary School Textbook:	37 kinds (1979-80)
Air and Correspondence High School Textbook:	43 kinds

APPENDIX I

OVERVIEW OF KEDI'S POPULATION EDUCATION ACTIVITIES

By the early 1970s demographers and researchers were increasingly aware of the necessity for changing Korean social values and attitudes toward family size and with support from the United Nations Fund for Population Activities (UNFPA) and UNESCO, a population education program was initiated in 1974. Under the supervision of the Ministry of Education, the Central Office for Population Education (COPE) was established to carry out a population education program for in-school children. For research on, and development of population education for grades 4 through 12 a population education unit at KEDI also was established as a temporary entity on contract to COPE and funded by the UNFPA (Approximately $400 thousand).

KEDI's population activities can be divided into two broad periods: research and development -- 1974-1977, and program experimentation and dissemination -- 1977-1981. Their activities also can be divided into basic research, curriculum development, teacher training, and field experimentation and dissemination.

The basic research activities for population education included:

- -- a survey of the students' knowledge and attitudes toward population problems in elementary and secondary schools;
- -- two separate surveys on teachers' knowledge and attitudes toward population problems in elementary and middle schools;
- -- a survey on the effects of the socio - economic environment of students, parents, and teachers on population education;
- -- a research and development program for the curriculum and approaches to population education.

There were three levels of training programs, for resource persons as key trainers, educational administrators and teachers.

The content of population education included:

- -- population consciousness,
- -- demographic analysis,
- -- population change and economic development,
- -- the effect of population growth on the environment,
- -- family life and health education,
- -- reproduction behavior.

A KEDI decision to adopt an "infusion approach" whereby population and family planning materials were integrated in existing curricula was sound (as opposed to establishing a separate population curriculum). This was further and sensibly refined by constructing population "units" in ongoing instruction in mathematics, social studies, Korean history, health and home economics.

The content of population education materials was excellent although perhaps somewhat overly ambitious. A good deal of desirable and sound health education was added covering such practical topics as family nutrition, family income, human sexuality, maternal-child health, sanitation and environmental pollution. In some instances, the subject matter may have been too sophisticated for the intended age levels.

When KEDI attempted to measure actual differences in learning between students exposed to the new curriculum and those who were excluded in "control" groups, the results were mixed. What is important - indeed impressive - is that in the process, KEDI established the capacity to carry out this kind of evaluation, recommend changes in training of teachers and curricula and introduce changes that will remedy shortcomings. For example, KEDI discovered that the quality of teaching and learning materials exerted a greater influence on student achievement than other factors thus pinpointing where and how program changes could be made most effectively.

Because of careful design and the creation of evaluation capacity, population education was solidly established in the school system and future efforts can be expected to increase learning effectiveness as more experience is acquired. Clearly, Korea deserves its reputation as a pioneer in the field of population education and lessons learned there increasingly will be valuable for other countries embarking on this vital component of population policy and programming.

APPENDIX J
SOME INTERNATIONAL VISITORS TO THE KOREAN EDUCATIONAL DEVELOPMENT INSTITUTE (1975-1980)

Following is a sample of selected from among the hundreds of international visitors to KEDI from 1975 through 1980. This variety of visiting professionals demonstrates wide-ranging attention KEDI's work is receiving and suggests the potential the Institute has for providing echnical support to other countries, particularly those in East Asia.

Dr. A Hameed, Dr. K.G. Kibriya, Mr. N.A. Oureshi, Mr. M.A. Khokhar - Pakistan - Attended a one month training session in instructional development.

Dr. F.C. Brown, Physics Professor, London University; Chairman, British Science Education Association - Oserved the Science Education Development Project.

Mr. S. Nizomkar, M C. Intasian, Dr. B. Masang. Professors, Chiangmai University, Thailand - confer on new community education and radio/correspondence high school program.

Dr. Ishag Farhan, Dr. Fakroud din Abdulhadi Daghastani, Dr. Jamil N. Ayoub, Jordan Royal Institute of Science - Received general briefing on KEDI's research and development activities.

Dr. C. Grote, Mr. P. Seaw, CEPT, Educational Broadcasting, Singapore - Discussed technical cooperation between KEDI and CEPTA in the development of Adult Education Programs.

Mr. J. Ratinaike, Education Advisor in Regional Education Office for Asia, Thailand - Discussed feasibility of KEDI's conducting large-scale training for educational planners.

Dr. A.M. Ross, University of Lancaster, Great Britain - toured KEDI and conducted seminar on primary and middle school curriculum development.

Twenty-one members of the Science Education Study Team, Republic of China - received orientation on E-M project and other KEDI programs.

Dr. A.C. Yamashita, President, Guam University, Dr. Kenneth F. Simon, Vice President of Western Michigan University and 11 other educators - toured KEDI's facilities and participated in seminars on the Institutes programs.

Dr. M.C. Pant, Consultant in Science Education, UNESCO/Bangkok - Conference on the relationship between KEDI and other Asian educational developers.

Dr. A. Rubery, Dean, College of Education, Sri Lanka University - received KEDI's population education program.

Dr. H.G. Connon, President, DeFasalle University, Phillipines - received general briefing on KEDI's institutional development history and current programmatic activities.

Mr. Charoon Vongsayana, Undersecretary, Ministry of Education, Dr. Cayut, Director, Bureau of Educational Technique, MOE, Thailand - general briefing on KEDI.

Mr. Ismal Seraegldin, Director of Adult Edication Bureau, MOE, Saudi Arabia - given overview of KEDI's research and development activities; they were particularly interested in Korea's Saemaul (new community) movement.

Mr. Hamdan Mansoe, and six Indonesian population education specialists - received KEDI's work in integrating population education concepts and information with traditional subject matter.

Mrs. W. Jamnarnwej, Minister of Higher Education, and eight staff members, Thailand - orientation to KEDI and its work.

Dr. Yolamda Zamorano Cebollos, Colegio de Profesores, Santiago, Chile - received general briefing on KEDI.

Dr. George Reed, President, University of Wisconsin - gave a lecture to KEDI's professional staff.

Mr. Serajul Islam Khan and four associates, Educators from Bangladesh - received KEDI briefing.

Mrs. Neelan Basnet, Educator from Nepal - tour and orientation to KEDI's activities.

Mrs. Fatima Abu and six associates, Population Education Specialists, Malaysia - Seminar and KEDI's curriculum development in area of population education.

Dr. Felipe E. McGregor, Member of the Consejo de la Universidad de las Nacioues Unidas - general briefing on KEDI's programs.

Mr. Umezo, Official of the Papua New Guinea Ministry of Education - Undertook a four-week internship program at KEDI in educational planning and policy studies.

Ms. Pangsri Limchaidana, Ms. Koontorat Ratunasing, Educators from Thailand - underwent four-week internship program on curriculum development, educational planning and research methodology.

APPENDIX K
RECOMMENDATIONS FOR THE GOVERNMENT OF THE REPUBLIC OF KOREA

1. Textbook and workbook costs could be reduced significantly by amortizing them over the MOE's five year textbook cycle. This would require somewhat more durable books that would not be retained by the student at the end of the course, as is the case in the rest of the world. The Impact Evaluation team does not believe that students make significant use of these textbooks after the course is completed. There is a serious lack of learning materials in many schools. If books were reused for five years the government could increase learning material availabilities approximately fourfold at no additional cost.

2. In the 1982/83 time period Korean teachers and children will begin to receive new KEDI developed teacher guides and textbooks. Research has demonstrated that these new materials will not be used to their maximum effectiveness unless teachers understand the teaching/learning process which these materials are meant to serve. These materials should be introduced through inservice training courses, TV instruction of teachers, etc.

3. After new textbooks are distributed, the MOE and KEDI should determine whether the learning achievement levels attained in E-M Project schools are being equaled through use of these new materials. If not, and the cause is determined to be not including all materials in the textbooks that were in the workbooks, then consideration should be given to distributing supplemental workbooks, which could be much smaller than the current workbooks.

4. Instructional radio broadcasting should be time sequenced with the classroom courses these broadcasts are designed to supplement. Every school visited found the lack of time sequencing a problem which resulted in either reduced use of the broadcasts or a requirement to record the broadcasts for use at the proper time.

5. The MOE and KEDI should assure that the characteristics of the new instructional system, with its dramatic learning achievement results, are widely disseminated to all Colleges of Education and teacher trainers. If new teachers were familiar with the teaching/learning processes used by KEDI, then the inservice training requirements placed on the MOE and KEDI would be reduced.

6. KEDI is an important, world recognized resource. If its unique capabilities are not to be eroded the government should review carefully its professional working conditions, pay and benefits to assure that KEDI remains competitive with other academic institutions. Moreover, KEDI's growth and significant success thus far must be attributed largely to the quality of its leadership, exemplified by former President Dr. Lee, Yung-Dug; President Hong, Woong-Sun; Dr. Shin, Se-Ho and many others.

Maintenance of this high level of professional leadership is critical to KEDI's future.

7. The scope and professional level of KEDI's work requires a fair number of people trained to the doctoral level in a variety of specialties. KEDI's work is demanding, time consuming and allows the persons less autonomy than he or she would have in a university. KEDI has experienced high attrition with this level of personnel - a condition likely to continue. Of the 31 employed at the doctoral level by KEDI since 1972, only 15 were still at the Institute as of April, 1981. Thus, KEDI is operating with only half of its Ph.D. requirement. While these Ph.Ds are not lost to Korean education, they are lost to KEDI. The government should budget recurring funds for overseas training of new generations of Ph.Ds for KEDI if the present organizational capability is to be maintained.

8. The Government should consider arrangements which would facilitate **assignment interchanges between KEDI and university professionals.** This would benefit both the institutions which would receive fresh ideas and experiences, and the professional growth of the individuals involved.

9. The working relationship between KEDI's staff and their MOE counterparts should be improved. If KEDI's work is to have impact on the MOE's policies and operations mutual respect and understanding is essential. An adversary relationship between some personnel of the two organizations was observed by the Impact Evaluation team. Such a condition must have an effect on the work of both KEDI and the MOE.

10. Educational policy formation and decision making must be based on accurate, reliable and timely information. The consequences of decisions must be predicted consistent with the analysis and interpretation of such data. KEDI has served as an excellent means of assistance to MOE and other government agencies in their policy development, budgeting and long term planning. One of KEDI's highest priorities always should be continuing to provide these research services in support of government policy formation.

11. KEDI has no broadcast facilities of its own, it depends on the UHF facilities of the Korean Broadcast System (KBS). Some Korean's believe that as the KBS's production capacity grows, KEDI may be requested by the KBS to relinguish broadcast time, particularly prime time. If so, the ROK may have to establish priorities for the use of KBS's facilities or see that KEDI recieves transmission facilities of it's own.

12. The successes of the E-M project should cause the Korean government to consider seriously a similar activity for higher education. With the anticipated rapid increases in college and university enrollments there is and will continue to be a growing shortage of qualified faculty. Also, the unit cost of education at this level is high. There are many technologies presently in use, in other parts of the world, which would

have proven value in improving and economizing higher education. An analytical study of higher education in Korea almost certainly would reveal sensible applications for some of these technologies.

13. KEDI should begin to broaden the range of its senior professional specialties. Presently, all important specialities in education are represented on KEDI's staff. However, as a national resource the Institute would be strengthened by including other disciplines critical to sound educational development. Examples of disciplines which could be added fruitfully are philosopy, sociology, psychology and management.

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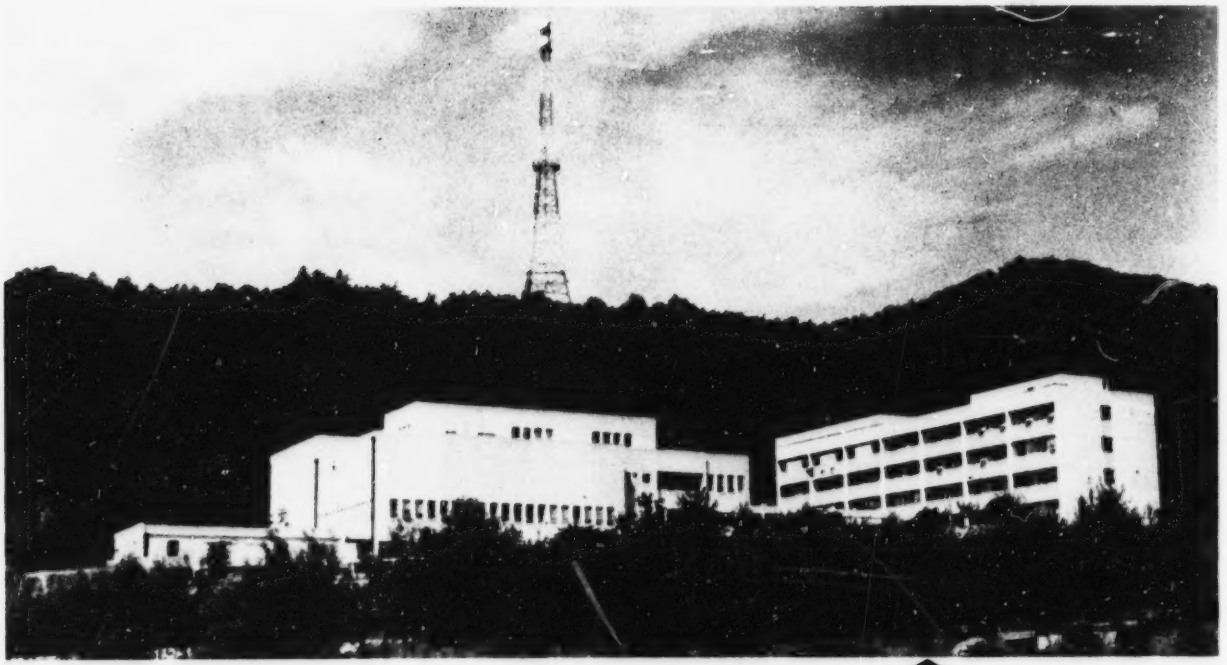
APPENDIX L

PHOTOGRAPHS



KEDI's main office buildings which also contain its broadcast production facilities.

Microfiche area of KEDI's Educational Resource Center

KEDI's Television Production Control Room.

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Samples of KEDI's student workbooks and teachers guides.

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Washington, D.C. 20523